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# FLIGHT

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M. Ladougne flying on a stormy day on his Goupy biplane at Doncaster Flight Meeting.

# HOW THE ALTITUDE OF AN AEROPLANE IS MEASURED.

By MAJOR F. LINDSAY LLOYD.

THE simplest method of measuring the altitude of an aeroplane in flight is to take, by means of theodolites, simultaneous observations of the machine, as it passes across an imaginary line the length of which is carefully measured and forms a "base" for calculation. The observers are situated at opposite extremities of this base, and in order to ensure accuracy they should be placed as far apart as possible and their stations must essentially be on the same level.

A theodolite is a device in the nature of a telescope, which part of the instrument is mounted on a swivelling bracket carrying a scale divided so as to measure the angle from the horizontal to which its line of sight is tilted. The observer brings the aeroplane into focus and keeps it in sight across the line; as it passes over the base he makes a note of the angle recorded on the scale, and from the figures thus obtained, the altitude of the machine is calculated from the following very simple formula:—

Altitude =  $\frac{\text{Base}}{\cot \alpha + \cot \beta}$  (where  $\alpha$  and  $\beta$  are the observed angles).

From the nature of the above expression it will be obvious that in any installation of this character intended for permanent employment on a flying ground, it would be a great convenience to have the vertical arcs of the theodolites marked off in the natural cotangents of the degrees of altitude, as this would save reference to a table book and thus reduce the calculation to a simple division sum. Another point of practical importance is that the theodolites employed should have reflecting eye-pieces so that the observer is not inconvenienced by having to get right under the instrument in order to sight a machine that is almost directly overhead.

As a check upon the mathematical calculations it is exceedingly useful to plot the observed angles graphically on a sheet of squared paper. The angles are laid off at opposite extremities of a horizontal line, representing the base, to scale. The intersection of the angle lines graphically represents the exact position of the aeroplane at the moment of crossing the line, and the vertical height of the triangle thus drawn corresponds, to scale, to the altitude of the machine above the ground.

There are several difficulties and objections to this method of observing altitudes, which may be summarised as follows:—

(a) The difficulty experienced by the aviator in locating the base of observations when he is at a great height.

This can be diminished by making the base line very long, even to the extent of placing its extremities outside the flying ground. This latter provision is especially beneficial from the aviator's point of view, for he can generally distinguish the flying ground itself amidst the surrounding land and is probably able to steer a fairly true course over some part of it.

(b) The fact that although the aeroplane may be perfectly visible from the ground, the ground is sometimes invisible from the aeroplane, so that the difficulty mentioned in paragraph (a) becomes exaggerated. A recent instance of this occurred in a flight made by Morane at Bournemouth.

(c) The difficulty that the observer at one end of the base has of knowing whether the aeroplane as it

apparently crosses the line is really crossing the line itself, or whether it is beyond the other observer and, therefore, only crossing a prolongation of the line. In this case the calculation of height is possible, but the shape of the triangle is likely to militate against accuracy in the graphic method.

This difficulty can be avoided by having the two stations of observation in telephonic communication, which is practically a necessity, for although, theoretically, the observed angles can be taken and the time of their observation noted and recorded independently at each end of the base, there are many other points on which constant communication is required. This is particularly the case where several machines are flying at the same time or when quick results are required and the observed angles have to be communicated for the purpose of immediate calculation.

(d) It is quite likely that the point at which the aeroplane attains its greatest altitude is some way from the base line, consequently the recorded altitude may not be the greatest height attained.

(e) At great heights the aeroplane is frequently hidden behind clouds, as for example happened when Latham was flying at Rheims and also when Drexel was flying at Lanark.

These two last mentioned objections are the most serious drawbacks to terrestrial observations of altitude, but the difficulties referred to in paragraph (d) may to some extent be overcome by taking a series of simultaneous measurements when the aeroplane is at any convenient point for observation from both ends of the base. In this case, however, it is necessary to record both the horizontal and vertical angles; moreover the subsequent calculation is more complicated and tedious.

The process consists of calculating the two sides of a horizontal triangle formed by the base and the two observed horizontal angles, the formula for which is  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$  (where  $a, b, c$  are the sides and  $A, B, C$  are the angles).

The apex of this triangle defines a point situated vertically beneath the aeroplane at the moment of observation and either of the two sides of the triangle thus calculated serves as a new base for a further calculation to determine the altitude. This latter is performed by the aid of the formula for altitude first mentioned; one of the new bases and its adjacent vertical angle, as measured by the theodolite being the two factors. The other angle is, in this instance, a right angle, which having a zero cotangent can, therefore, be eliminated from the expression. Taking each of the new bases with their respective adjacent vertical angles, two separate calculations for the same altitude can be made and the agreement between the results is an automatic check on the accuracy of the observation. The graphic method can also be employed as a further check on these calculations if it is considered desirable.

The method just described is much better suited to the needs of aviators owing to the difficulty explained in paragraph (a), but there is the objection that it requires considerable personnel to carry out. Not fewer than two observers and one telephone operator are required at each end of the base, and the difficulty of taking these simultaneous observations accurately is so great as to

require not only practice but "drill." It is desirable that two sets of observers at either end of the base should be employed for really accurate work.

But, the most carefully arranged system of terrestrial observation is entirely defeated if, as noted in paragraph (e), the aeroplane passes out of sight at the critical moment. In such cases there is nothing but the barometer to fall back upon. A barograph or registering barometer must be employed, and if possible two instruments should be carried on the machine. A convenient and reasonably small instrument was supplied by Messrs. Short Bros.

\* \* \* \* \*

## PROPELLERS AS STABILISERS IN FLYERS.

By S. L. WALKDEN.

THE stabilising effect of the propeller upon an aeroplane seems to be somewhat neglected, but perhaps this is because in full-size aeroplanes, as at present constructed, the stabilising effect is not so great, it is in some of the lighter elastic-driven models.

An aeroplane is almost invariably given a certain degree of automatic stability by first forming it so that the centre of pressure moves forward with a diminution in the angle of incidence, and then placing the centre of gravity where the centre of pressure lies during the desired steady flight. It is well known how the centre of pressure then moves forward and steers the aeroplane up if it tends to dive, and how the centre of pressure moves backwards and steers the aeroplane down if it tends to sweep up. It is also well known that such an aeroplane sweeps up to a sudden head gust and down to a sudden rear gust. Why the aeroplane does not merely rise to a sudden head gust, but also rotates in an upsteering sense, is, however, not always made clear, for the head gust does not primarily alter the angle of incidence to bring the centre of pressure forward. The primary effect of the head gust is to increase the lifting force upon the aeroplane without rotating it, but once the aeroplane begins to move upwards, without being rotated, it is moving more edgewise through the air, and the angle of incidence is reduced. The centre of pressure does then move forward, and the upsteering torque is produced as a secondary effect of the gust.

It is evident that the disturbing effects of the head gust and rear gust upon the pose, are caused by the changes in velocity relative to the air, and will be prevented by anything which keeps the relative headway constant. Now this is exactly what the propeller tends to do, for it is essentially an appliance for driving the aeroplane at a certain speed through the air.

When the aeroplane is flying steadily, horizontally, it shows that the propeller's thrust is just equal to the head resistance. If the relative headway then tends to increase or decrease, in consequence of a head gust or rear gust, the head resistance is increased or decreased respectively, while the propeller's thrust is decreased or increased. The alteration in relative headway is therefore opposed.

The features favourable to this form of stability, and the reasons why, are:—

for both the Bournemouth and Lanark meetings. Experiments are now being made with the object of producing a still more convenient and suitable instrument of this nature. Such instruments should be tested and adjusted before using, the indicator recording zero at the altitude of the ground. Having in view the greater heights now obtained, it is desirable that a barograph should always be available at flight meetings, and there seems no reason why they should not be made sufficiently accurate to enable terrestrial observation to be dispensed with altogether.

(1) **A Large Propeller:**—This will drive the aeroplane on very small slip, and therefore be likely to give large changes in thrust for small changes in slip or relative headway.

(2) **Means for Preserving the Rotation of the Propeller against Sudden Change:**—This may take the form of fly-wheel energy, especially in full size aeroplanes. In elastic driven models friction in the propeller bearing, or certain forms of inefficiency in the propeller, will have the same effect. If, for instance, the torque of the elastic is overcoming much resisting torque independent of the slip of the propeller, the speed of rotation will not vary greatly with changes in the slip or relative headway.

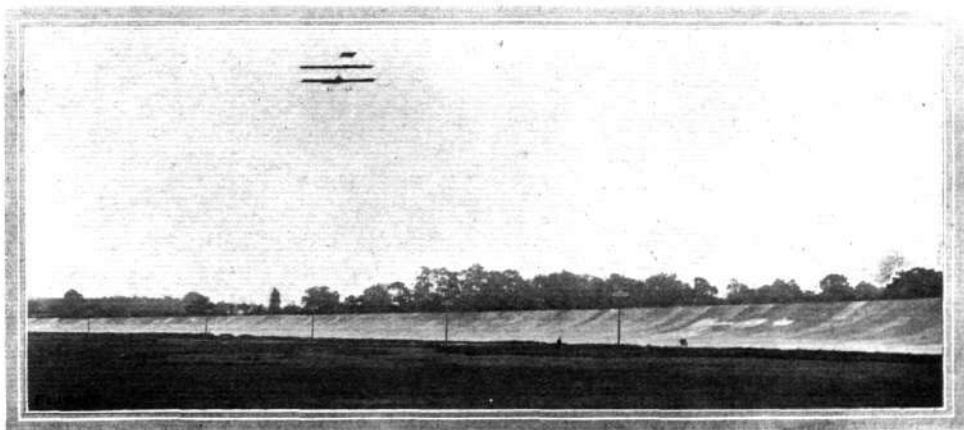
(3) **A Light Aeroplane:**—This enables a small thrust to drive it, and the large propeller will be working on still smaller slip than otherwise, and have its thrust most sensitive to changes in slip or relative headway. The light aeroplane is also rapidly accelerated, backward and forward, by the small thrusts which act to keep the relative headway constant.

These features are characteristic of most successful elastic-driven models, and are little in evidence in the heavy full size aeroplanes, with their small propellers without added fly-wheel effect.

The propeller induced stability is primarily longitudinal in nature, but, in most aeroplanes, lateral loss of balance depends so much on loss of headway, that the propeller indirectly aids the lateral stability also.

From one point of view, the aeroplane, stabilised in this manner, may simply be regarded as following the longitudinal movements of the air so closely as to be virtually always flying in calm air. The velocity relative to the ground, it will be noticed, is made variable to the degree the relative headway is made invariable.

The comparative absence of this kind of stability in full size aeroplanes is, to some extent, compensated by the natural stability of many as high-speed gliders. These considerations may appear to further separate the light elastic-driven models from the full size aeroplanes, but such distinction should not be recognised, unless it be found impracticable to add the propeller induced stability of the models, in considerable degree, to the natural glider stability of the full size aeroplanes.



AEROPLANE VERSUS MOTOR CYCLE AT THE A.C.U. BROOKLANDS MEETING.—M. Blondeau racing F. A. McNab, on a 34-h.p. Trump, round the Brooklands Track.

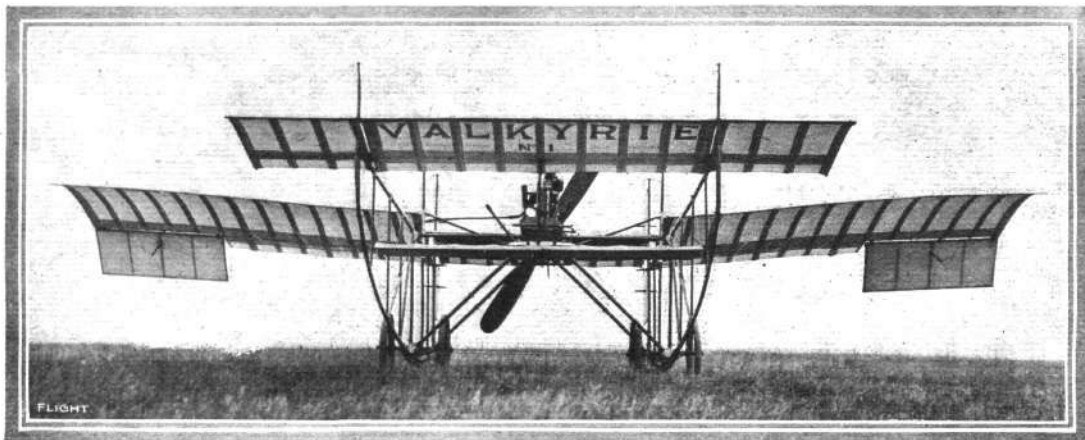
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## THE VALKYRIE AEROPLANE.

It is always instructive to watch the progress of a machine, no matter in what field of operations, that differs from the accepted practice in certain easily recognised characteristics of design. Thus, for example, "Valkyrie I"—the product of the Aeronautical Syndicate—has as its particular characteristic the peculiarity of flying tail first. As an expressive phrase this defines exactly what the machine would appear to be doing in the eyes of the average observer whose acquaintance with aviation was limited to his

planes are set at a lesser angle of incidence to the axis of the propeller than the leading plane; which principle is observed in respect to the after surfaces of all machines. Of the theory of the dihedral angle itself there has been so much discussion in *FLIGHT* that we scarcely feel called upon to do more in the present instance than refer our readers to such pages as, Vol. I, p. 662; Vol. II, pp. 56, 82, 98, 222, 244, 261.

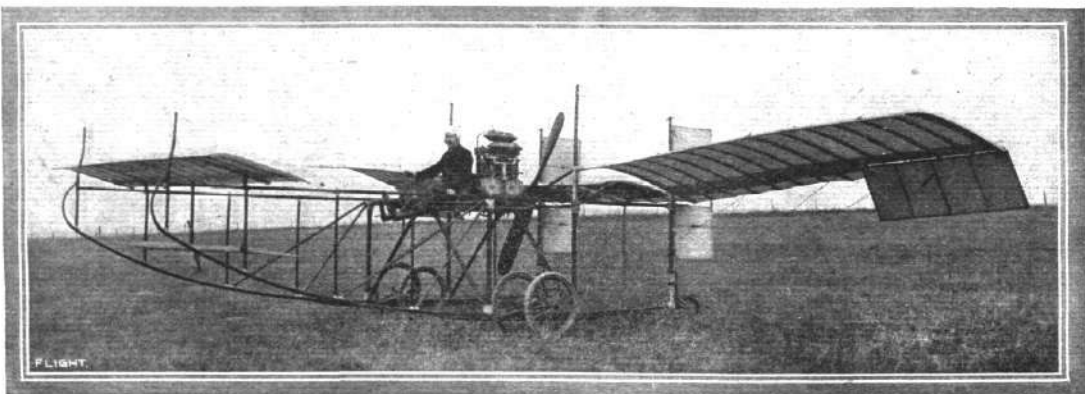
It is important to bear in mind in order to avoid any possible



"VALKYRIE I" SEEN FROM IN FRONT.—The plane on which the name is written is a fixed leading plane; beneath it is a small elevator.

attendance at a few flight meetings where machines of orthodox type were alone to be seen in the air. On the other hand, it is undesirable to use the expression seriously as a technical description for the very obvious reason that the tail of anything must be behind. Moreover we are, in a sense, on the horns of a dilemma in respect to the Valkyrie, in deciding whether the main planes themselves should be considered as a tail or of stating quite plainly that the machine possesses no tail at all.

confusion when looking at the accompanying illustrations of the machine, that the large leading plane in front is a fixed plane; that is to say, it is not in any way under the control of the pilot when in flight. On the other hand, it is, for convenience, so mounted that its angle of incidence can be varied for experimental purposes, and in particular for compensating any considerable difference in the load supported. Beneath the leading planes, but a little to the rear, is the elevator proper, which is a much smaller plane of scarcely

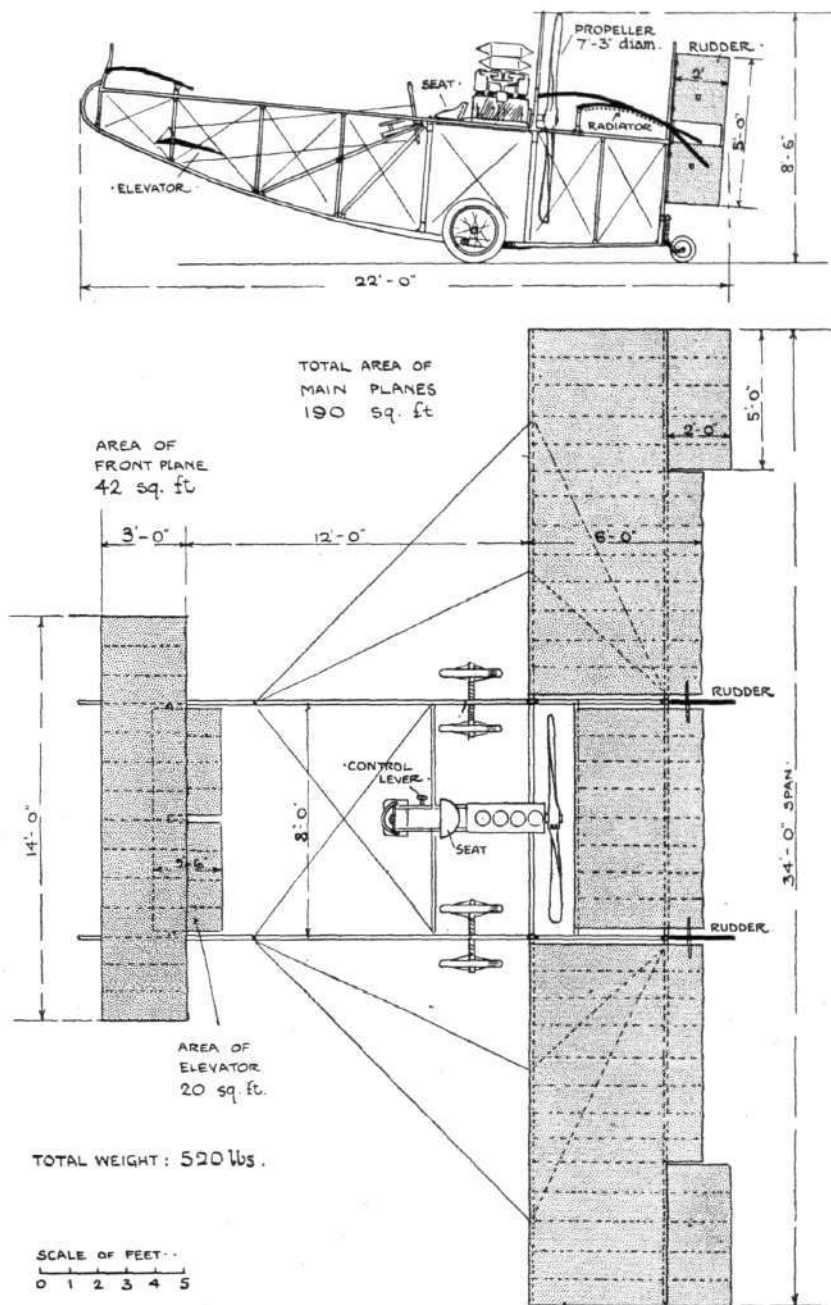


"VALKYRIE I."—General view of the Aeronautical Syndicate's monoplane, photographs of which machine in flight appeared in our last issue.

In the ordinary use of the term, "Valkyrie I" is a tailless monoplane fitted with a leading plane in front of the main planes, but there are scientific reasons for regarding the main planes themselves as performing the function of a tail in respect to the leading plane. The same principle has been much discussed, for instance, in connection with the well-known Clarke model flyers, which also have as a characteristic feature the presence of a leading plane and the absence of a tail. Their longitudinal stability, and also, presumably, that of the Valkyrie, is due to the dihedral angle formed by the leading plane in respect to the main planes. The main

more than half the span of the leading plane. The operation of this elevator is effected by wires from a universally-pivoted lever mounted in the same fashion as the corresponding member of control on the modern Farman biplane. This same lever, when moved sideways, controls the machine laterally by deflecting the balancers that are hinged to the trailing edges of the main planes, at the extremities. A pivoted foot-rest in front of the pilot controls a pair of interconnected rudders that are also located on the trailing edge of the main planes.

The presence of these rudders close up to the main planes is



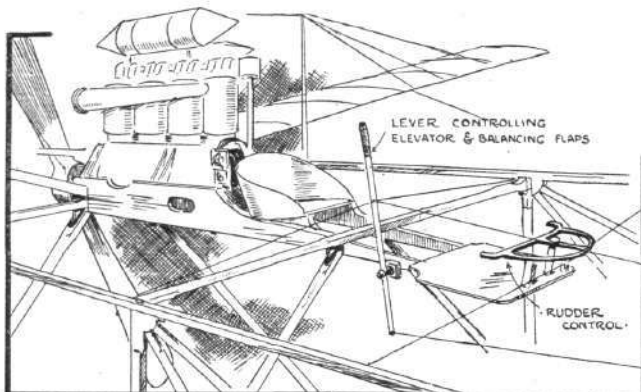
"VALKYRIE I,"—The Aeronautical Syndicate's monoplane, 1910.



somewhat reminiscent of the original Short biplane, and is in some respects the most important feature of the machine, for coupled as it is with the absence of a tail, the principle involved results in a most important reduction in the overall length. "Valkyrie I," which is shown in the accompanying illustration, measures only 22 ft. from stem to stern, although it has a span of 34 ft. Experiments were originally carried out with the independent operation of the rudder-planes, but the interconnection of these members has been found preferable, and the steering effect is the same, in principle, as that of a rudder carried on the extremity of an outrigger. The absence of leverage, which would ordinarily be provided by the distance of the outrigger from the main planes, is in this case seemingly made up by the increased influence of the slip of the propeller on the particular rudder-plane that happens to be turned into the wash. It will be observed that the rudders are situated one on either side of the slip-stream from the propeller. These rudders are not especially large; indeed, they have actually less area than those on the Wright biplane, with which machine the Valkyrie, although a monoplane, is almost unconsciously compared.

In this comparison, moreover, it is interesting to note that although the leading plane of the Valkyrie seems to be an unusually long way in front of the main planes it is actually scarcely more than a foot further off than the elevator on the Wright biplane, and the dimension is identical with the corresponding measurement on the Curtiss biplane of last year. Regarding dimensions, an out-

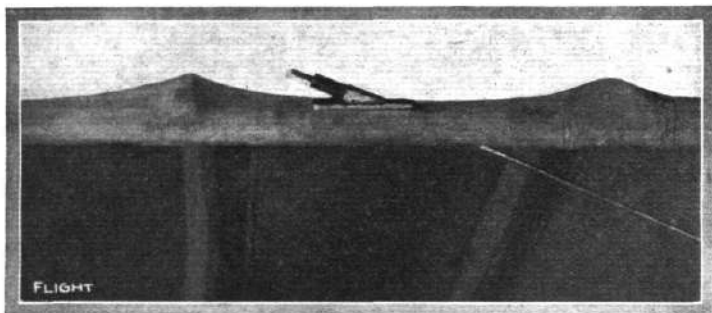
Special aluminium sockets are employed in many places on the Valkyrie, and especially should their use be noted as abutment



"VALKYRIE I."—Sketch illustrating the position of the pilot's seat and the arrangement of the control.

pieces in connection with the method of anchoring the tie wires on this machine. Not one of the important wires used in bracing the Valkyrie is either fitted with a strainer or bent over at the ends. The method of attachment adopted avoids the necessity of doing either, and thus simultaneously saves the weight of a wire strainer, and likewise overcomes any objection that there may be to bending.

The wires used are of larger gauge than ordinary, and it has been found preferable to employ wire that does not exceed 110 tons tensile strength owing to the liability to brittleness of the higher grade steel. All the wires are cut approximately to the desired length, and then have a screw thread chased upon their extremities so as to take an ordinary nut. The wires are threaded through the lugs at the points of attachment to the frame, and the nuts are fastened down against the special aluminium brackets provided for their abutment. One such bracket is shown in an accompanying sketch, and another is illustrated in a detail photograph, which shows how the tie wires are fastened to the main spars of the main plane. As a practical flying machine, the designers of the Valkyrie lay emphasis on the advantages associated with the position in which



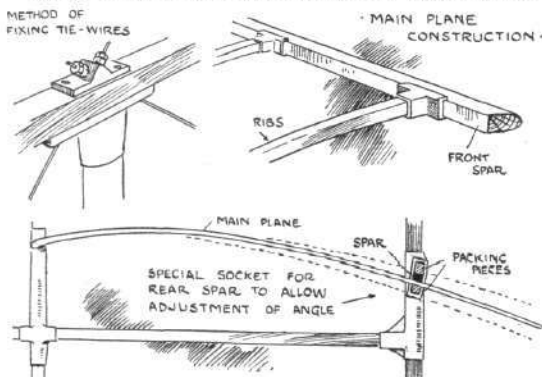
Detail view showing the method of attaching the tie wires for bracing the spars of the main planes.

standing feature of the Valkyrie is that it provides over 140 sq. ft. of supporting surface for a total weight of 520 lbs. This weight is approximately that of the Blériot monoplane, but the Valkyrie is a machine of much wider span, and much greater area. Such lightness is due entirely to detail design, for the machine carries a standard Green engine of 30-h.p., and a glance at the accompanying illustrations, particularly the drawings, is sufficient to show that, with the exception of the tail outrigger, it has the usual number of principal members. Perhaps the most important constructional feature of the machine from the point of view of detail is the use of a single-surfaced main plane, which is considerably lighter than a double-surfaced member, firstly owing to the smaller quantity of fabric, and secondly owing to the lighter character of the cambered ribs.

In connection with the attachment of these latter to the transverse main spar forming the leading edge of the plane, there is an interesting detail that is illustrated in one of the accompanying sketches. It will be observed that in order to avoid weakening the main spar by making mortice joints, the ribs are held in aluminium sockets fastened to the back edge of the spar by screws. These sockets are also flanged, and the flange is grooved so that it overlaps the edge of the spar and thereby obtains great rigidity of support without cutting the wood. The ribs themselves have a slightly triangular section, this shape having been found to give the greatest ratio of lateral stiffness to weight of any simple form of construction.

The main plane of the Valkyrie is built in three sections, and special aluminium sockets have been designed to facilitate an adjustment of the angle of incidence of the main plane by raising or lowering the rear transverse main spar during erection. The central portion of the main plane has a shorter chord than the extremities, and is also adjusted to a smaller angle of incidence owing to its presence in the slip stream of the propeller.

shows how the tie wires are fastened to the main spars of the main plane. As a practical flying machine, the designers of the Valkyrie lay emphasis on the advantages associated with the position in which



"VALKYRIE I."—Sketches illustrating various special features of construction.

they place the pilot. He is situated in front of the engine away from the exhaust and the draught of the propeller, and he has an

unobstructed view of the ground below and of the country all round. From the beginner's point of view, there is a feature of the Valkyrie to which we would particularly call attention, and that is the use of those very long skids, which form such a prominent feature in the general appearance of the machine. Since the various accidents to skilful pilots that have been due solely to the necessity of landing on bad ground, we have strongly advocated the employment of adequate skids on modern machines, and the Valkyrie appears to us to be an excellent example of such a type, although it does not happen to possess the disappearing wheel combination that we should so much like to see in general use. Incidentally, it may be remarked that the skids of the Valkyrie play a very important part in the construction of the machine, for they facilitate the forward bracing of the main planes, and thus serve to guard against the danger of bending spars that was pointed out by R. J. Macfie in a recent issue of *FLIGHT*.

A special feature in connection with the power plant of the Valkyrie is the provision of a small plunger pump on the Green engine for delivering petrol from the main-tank beneath the motor to a small gravity tank overhead. This system avoids pressure-feed,

and maintains a constant head, for if the delivery of the pump exceeds the consumption of fuel the surplus overflows the reservoir into the main tank. The pump is driven by an eccentric on the transverse magneto-shaft, and has a  $\frac{3}{4}$  in. bore by  $\frac{1}{2}$  in. stroke.

In conclusion, it may perhaps be of interest to summarise a few of the detail weights and dimensions:—

**Weights.**—Main planes, 50 lbs.; front planes, 23 lbs.; chassis frame, 105 lbs.; wheels, 50 lbs.; engine, 155 lbs.; magneto, 10 lbs.; dual ignition, 15 lbs.; propeller, 22 lbs.

**Dimensions.**—Propeller, diameter, 7 ft. 3 in.; pitch, 4 ft. 1½ in.; angle of incidence of the main planes with the propeller-shaft, 9°; maximum camber, 5 in., situated one-third of chord from leading edge; main fore and aft booms of chassis frame, 14 in. square section. Skid-members are of the same size, but strengthened by extra pieces, which double the depth in the vicinity of the axle; main plane spars, 2 in. by 1 in. (front), 1½ in. by 1 in. (rear).

**Materials.**—Honduras mahogany is used almost exclusively throughout the machine. The surfacing of the planes is made with unproofed Egyptian cotton fabric. The back edge of the plane is stretched by a cord.

## BRITISH FLIGHT EXHIBITIONS.

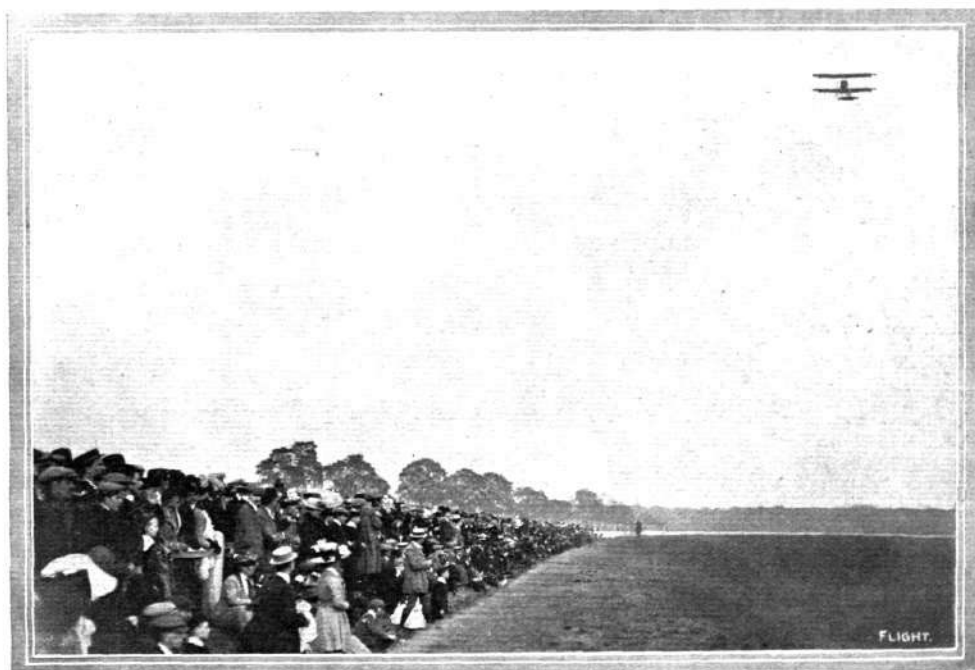
### Doncaster Week.

THANKS to the indefatigable Ladougue, the promoters of the Doncaster Meeting at least had the satisfaction that some flying had been seen each day last week. True, it was not so much as had been hoped for, but that was solely due to the weather. On Wednesday afternoon the conditions were very good, and Ladougue brought out his Goupy machine, on which, to the delight of the 5,000 spectators, he made a trip of seven minutes' duration. Ten minutes later he was up for a similar flight, and then Mamet brought out his Bleriot. He got away all right, but had not gone far when engine trouble developed, compelling a sudden landing. A stiff breeze then suspended operations for an hour, at the end of which time de Lesseps took a turn. After a preliminary round of the course he set off for the town and circled over the parish church, while he attained an altitude of 2,400 ft. During the evening he made two similar trips, Ladougue and Mamet also being out again. At six o'clock Ladougue essayed to win the £20 for the first aviator to fly ten laps. This task, which represented a distance of about fifteen miles, was completed in twenty minutes, but the aviator kept

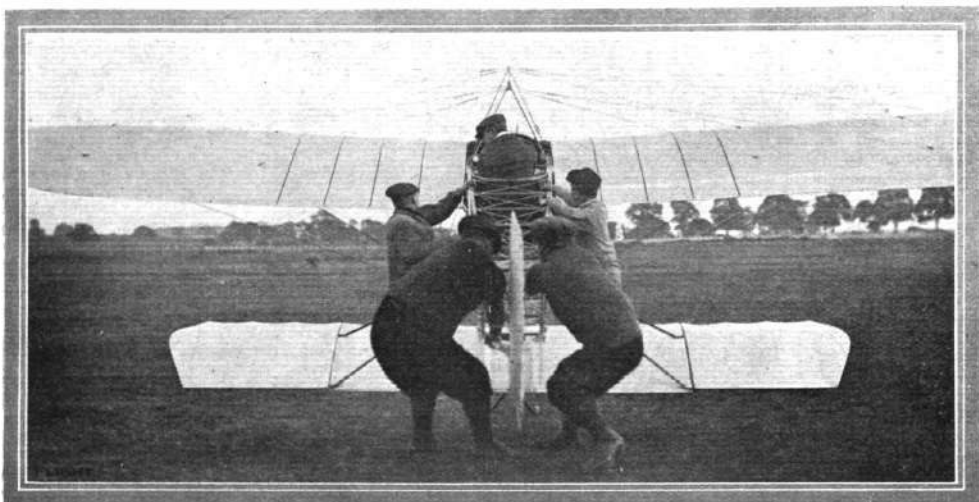
going for another seven minutes, covering two more laps, winding up by cutting figure eights in mid-air.

The number of machines on the ground was added to by the Farman biplanes of Mdle. Dutrieu and Bruneau de Laborie, but the gusty wind during the afternoon and evening prevented any extended flights. Ladougue was the first in the air, and he started off to try and win the ten-lap prize, but after nine circuits, he being so fatigued by the work of keeping his machine steady, decided to land. Mamet rose a few minutes afterwards and made six rounds at a height ranging up to 1,000 ft. De Lesseps then made a thrilling flight, while later Laborie flew half the length of the course, and Beau, on Mdle. Dutrieu's machine, made one circuit, but as weather conditions then were very risky, operations were suspended for the day.

Early on the morning of Friday, Mdle. Dutrieu ventured a short flight, carrying her mechanic as a passenger. Later on in the morning the wind gradually increased in strength, and by five o'clock in the afternoon the management announced there would be no flying. Ladougue, nevertheless, brought his machine out, and



DOWN THE STRAIGHT AT DONCASTER MEETING.—Ladougue giving an exhibition flight on his Goupy.



© M. Paul de Lesseps' Blériot impatient to take the air at Doncaster Flight Meeting.—How the mechanics restrain her.

despite the advice of the officials, circled round the ground twice, a perilous journey lasting three minutes, during which the craft was tossed about considerably by the air currents. Laborie also tried a flight, but only covered between 300 and 400 yards. Mamet, however, did better, and rose to 800 ft. and continued for a couple of laps.

On Saturday the wind was stronger than ever, and flying was rendered out of the question until half-past five, when Ladougue and Mamet each pluckily made a short flight. Subsequently to this it was officially announced that the cross-country flight to Burton

had been abandoned, and the machines of de Lesseps, Mamet, and Ladougue were sent on to the City of Bass by rail.

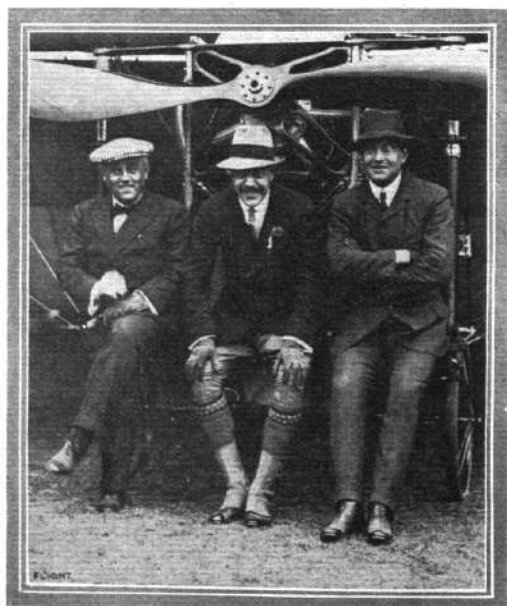
#### Burton Flying Meeting.

ON account of the high winds which prevailed, Monday, the opening day of the Burton meeting, was completely blank as far as any flying was concerned, and the spectators had to content themselves with a sight of the Goupy and Blériot machines. The impatience displayed at the absence of flights was in strong contrast to the reasonable attitude hitherto displayed at other British meetings.

Tuesday was more favourable, and at 11 o'clock the proceedings were opened by Ladougue, who made a two minute trial flight. Thereafter little was done before 3 o'clock, when



AVIATORS AT DONCASTER MEETING.—Mdlle. Dutrieu, with M. Beau as passenger, ready for a flight on one of the Henry Farmans.



DONCASTER AVIATION MEETING.—From right to left: MM. Bruneau de Laborie, Paul de Lesseps, and Baron de la Grange.



Mamet's Blériot was brought out. After a little preliminary tuning up, he started off. Rising rapidly in gradually widening circles he soon attained an altitude of 1,000 ft. and then returned to the ground, after a trip which had lasted 12 mins. 58 secs. Ladougue was also in the air for a little over a quarter of an hour, and at 5 o'clock de Lesseps made a flight over the surrounding country, rising to a height of 3,000 ft. He was up for 19 mins. 33½ secs. Ladougue also made two other trips, one of 12½ mins., while Mamet made a 6-min. flight in the twilight.

#### Folkestone Meeting.

ALTHOUGH, as we recorded in our last issue, the first two days of the meeting at Folkestone produced some good flying, the proceedings on Wednesday of last week were marred by the serious accident to Barnes. A strong northerly wind had been blowing all the morning, and it was not till half-past four that there was any possibility of demonstrations. Then Barnes, having got the engine of his Humber monoplane to run properly, determined to take his chance. He rose to a height of about 80 ft., and flew against the wind for half a mile, then turning. It was then apparent that the engine was not running well, as the flying was unsteady, but Barnes managed to clear some trees and a hedge, and after coming very close to the earth, the machine suddenly rose for some distance. Then something happened, and the spectators were amazed to see Barnes leave his seat and leap to the ground from a height of some 30 ft. Relieved of the weight of the pilot the machine shot upward for a few feet, then turning over and crashing to the ground. The doctors and ambulance men who hurried to the spot where Barnes had fallen found that he had fractured his skull and broken his wrist. These injuries were attended to on the ground, and then the aviator was conveyed to the Royal Victoria Hospital, where, according to the latest reports, he is making good progress towards recovery.

Later in the afternoon Mr. Moisant made several ascents with passengers, but the best flight of all was carried out by Mr. Cecil Grace, who made a rapid rise to an altitude of 3,500 ft. from which he glided down until within 1,000 ft. of the ground, then rising again to a considerable height, ultimately landing by a splendid glide.

On Thursday, the final day of the flying, on the Folkestone racecourse at Westenhanger Mr. Moisant had the field to himself, as Mr. Grace had left on the previous evening. Commencing a few minutes after four, Mr. Moisant was in the air almost continuously for over an hour, only landing four times to change his passengers, three of whom were ladies.

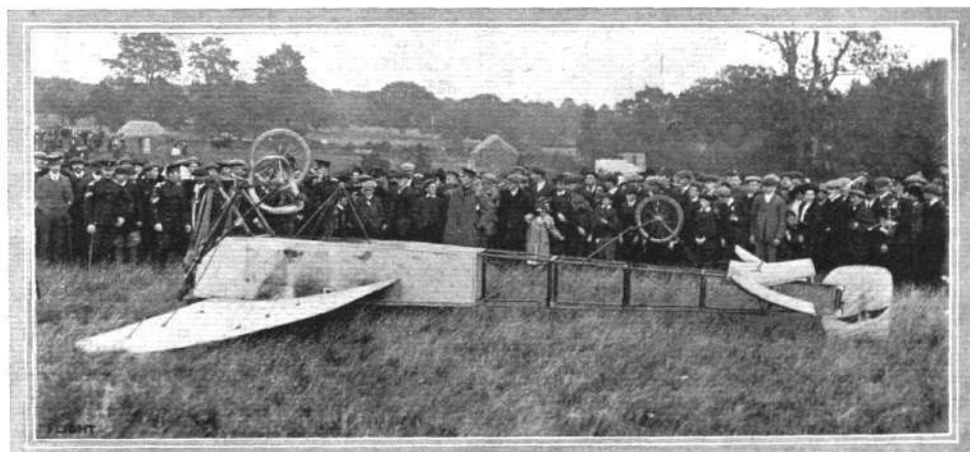
#### Flying at Brooklands.

In connection with the annual race meeting of the Auto-Cycle Union, held at Brooklands last Saturday, a novel event was arranged in the shape of a race between a motor cycle and an aeroplane. The motor cyclist was F. A. McNab, mounted on his Trump motor cycle, and he had to cover four laps of the full course, while Blondeau, on Mts. Grace Bird's Farman biplane, was making five circuits of the aerodrome course—about an equivalent distance. Fine weather favoured the proceedings, which were watched by a



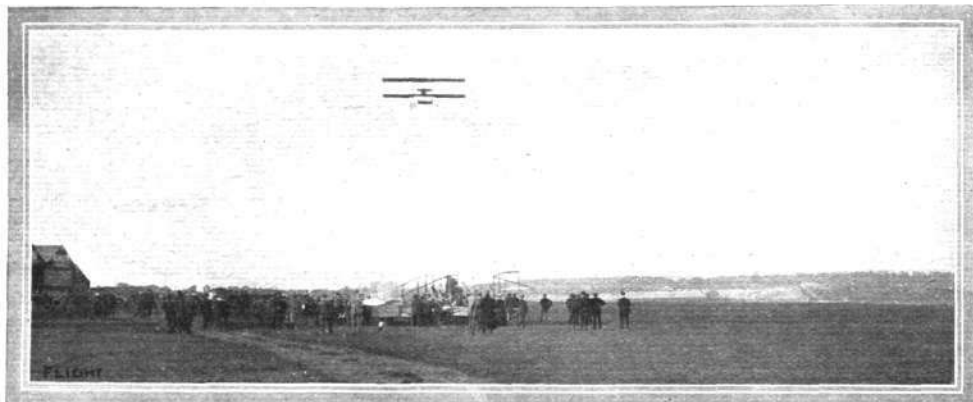
Mr. A. G. Barnes in flight at Folkestone Meeting ten seconds before his accident last week.

large number of spectators. The aeroplane had a flying start, and completed one lap before the motor cyclist was given the word to go. After an exciting tussle, McNab won by 36 secs. Subsequently some fine flying was seen by Blondeau, but he was surpassed by Graham Gilmour, who, taking Miss Bacon as a passenger on his Blériot machine, ascended to a height of about 1,000 ft., and detoured over the surrounding country. Blondeau, at a height of 300 ft., also ventured out beyond the bounds of the aerodrome. While these flights were going on the spectators on the ground were much interested in short flights by Macie, on his biplane, and experiments by several other flyers.



AFTER THE TUMBLE.—Mr. Barnes' monoplane upon its back at Folkestone after his bad fall last week.

# FROM THE BRITISH FLYING GROUNDS.



"Flight" Copyright.

FLYING AT BROOKLANDS.—M. Blondeau flying over Mr. Macfie's biplane at rest below.

## Brooklands Aerodrome.

SMASHES in the little colony are not now so frequent as a few months ago, but regulations as to people strolling at random, and machines left haphazard on the flying ground, should be made before some serious mishap occurs. It must be very disconcerting to a beginner who has not yet complete control of his machine either on or off the ground, to meet groups of people unexpectedly. On Sunday, the 18th, a curious little accident happened; the Warwick Wright monoplane, while running on the ground, collided with the little Weiss which was stationary in the middle of the ground. The damage, fortunately, was not serious, one wing of the Warwick Wright machine hitting the Weiss propeller, buckling it up.

Early Tuesday morning, the 20th ult., the "Neale VII" biplane made good flights, and Lane's Blériot, piloted for the first time by Mr. Billings, made several long hops. Wednesday, in the early morning, "Neale VII" was out, and later Mr. Macfie brought his biplane out for the first time since its alterations. This machine is now much shorter fore and aft, the monoplane tail being brought much nearer the main planes, which are mounted on a very low landing chassis with additional bamboo skids at the end of the lower one. It is now fitted with a 50-h.p. Gnome instead of the 35-h.p. Green, and shows signs of doing well with the additional power, covering the length of the ground at the first attempt.

About 5 o'clock some little excitement was caused by the arrival of Mr. Gilmour, carrying his mechanic on his two-seated Blériot. They had started from Wimbledon at 4.45 and had followed the L. and S.W. Railway lines at a height of 800 to 900 ft. Other machines out that evening were the Bristol biplane, the Avis (Mr. Spottiswood, pilot), Mr. Neale, on "Neale VII," followed by his pupil, Mr. Rippen, making some good straight flights.

On Saturday last, in the early morning (the favourite time for trial

trips, much to the disgust, I fear, of residents in Byfleet), the Spencer-Stirling biplane was brought out for its trial trip, and behaved exceedingly well, making hops with the engine well throttled. In the afternoon there was some exceptionally good flying, this day being when M. Blondeau had his exciting race with a motor cycle, losing only by 36 secs.

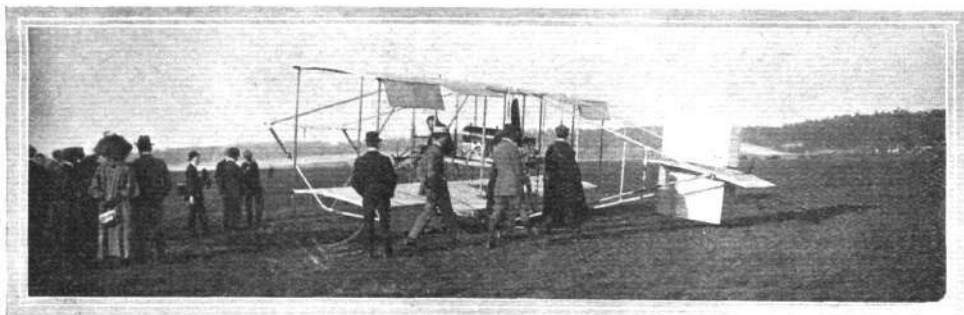
Mr. Gilmour made some fine cross-country flights with Miss Gertrude Bacon as a passenger. He was in the air nearly half an hour, reaching an altitude of about 900 ft. Later he took up another lady as passenger and several of the sterner sex for shorter trips. Messrs. Pointer, Spottiswoode, Pequet, and Macfie were out also. The last-named was the first out in the afternoon, and several of the spectators at the "fork" found it very difficult to keep one eye on the motor cycle racing and the other on Macfie, and eventually came to the conclusion that the aviator was making the more interesting performance. With the Gnome engine the Macfie biplane certainly flies well, and more should be heard of it before very long.

On Sunday Mr. Gilmour was out again carrying passengers. The Avis, Macfie and Hanriot all made good flights, and Capt. Maitland's new biplane, built by Messrs Howard Wright, came out but did not attempt to leave the ground.

## Royal Aero Club Ground, Eastchurch.

ON Monday, the 19th ult., Mr. F. K. McClean set out on his "Short" biplane to win his pilot's certificate, and, after negotiating the course several times in greatly improved style, he successfully accomplished the necessary circuits at an altitude of some 20 ft.

Tuesday and Wednesday were blank days, but on Thursday Mr. McClean was out at intervals throughout the day, and, in addition to several flights in the immediate neighbourhood, he made two trips to Shellbeach. At 5.30 p.m. Mr. Grace's Blériot arrived on the ground from Folkestone, and within ten minutes this was erected and he was trying her in the air. After covering about

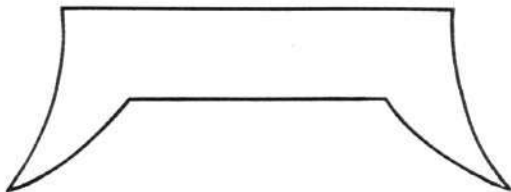


"Flight" Copyright.

FLYING AT BROOKLANDS.—Mr. Macfie preparing his biplane for a flight.

half the course he re-landed, and had the machine brought back for attention to the engine.

Early on Friday morning we had the first glimpse of the latest arrival here. This is a machine of somewhat peculiar appearance, built to the design of Mr. Jobling. It consists of one huge plane, at each end of which is a rear extension tapering off to a point. These extensions are pliable, and the direction of flight is controlled by wires connected to the extreme points and operated from the pilot's seat, located centrally beneath the plane. The total absence of elevators, tail or rudder give to this machine an unusual appearance, and its behaviour will be watched with interest. On the present occasion the machine was only run over the ground a short distance, so it is impossible yet to give any idea of her behaviour when in flight. The impression left by such a brief inspection was that it would be exceedingly unstable, owing, no doubt, to the flimsy appearance of the wing extensions before men-



tioned. The accompanying rough birdseye outline view will give some idea of the form this machine takes, but we hope to give a more detailed description after it has passed through the preliminary stages.

At about 4.30 p.m. Mr. Grace mounted Mr. McClean's Gnome-engined "Short" biplane, and immediately set off round the course at about 200 ft. After several circuits, he took the direction on Shellbeach, returning to *terra firma* about 20 mins. later. He gave an exhibition of some characteristic *vols plans*, and displayed admirable control of the machine.



"Flight" Copyright.

Mr. Macfie in flight on his biplane at Brooklands.

## ROUND-ABOUT FRENCH NOTES.

By OISEAU.

SOME ten days ago, at his château of Josselin, in the district of Morbihan, the Duc de Rohan and the Prince de Laon, his son, gave a banquet to the aristocracy of the ancient province of Brittany. Four hundred gathered together as their ancestors might have done in the days when a former duke was governor of the province, and when Louis XV still amused himself amidst the flowers at Versailles. And, as in the passage of the ages man's actions alter, but not his thoughts, probably the same sentiments were expressed and the same toasts drunk as were when the Bourbon ruled—less colour, perhaps, but the rest still the same. But after the banquet the change of period was emphasised by the appearance of a Blériot XI fitted with a Gnome engine. This was in the presence of the whole assemblage solemnly blessed by the priests of Our Lady of Josselin, by a form which has received the approval of high ecclesiastical authorities. After this ceremony Buisson, the pilot, made a long flight on the machine at a height of 2,700 ft. He landed amid the great enthusiasm of a crowd, the majority of whom had never seen an aeroplane in flight before. To conclude the proceedings they bore Buisson in triumph round the château; "and so," as Pepsy might have said, "ended the day with great joy to everyone."

On Sunday morning I was at Issy in time to see the commencement of the first attempt for the Grand Prix of the Automobile Club de France (Paris-Brussels-Paris). Before daybreak quite a large crowd had assembled, all waiting patiently for dawn. At two minutes past six Lorian rose on his Henry Farman biplane, accompanied by M. Fay, and made circle after circle round the ground. Mahieu, also on an H. Farman biplane, left the ground immediately afterwards with M. de Manthe as passenger. After passing over Saint Cloud M. Mahieu was forced by an engine failure to descend at Bagatelle. Two or three hours later, when again about to rise, an unfortunate dog, annoyed by the persistently revolving propeller, tried to bite it. The dog was cut in two, the propeller broken, and the biplane with the two top members of the fuselage broken, simply turned over, not hurting either the pilot or his passenger. So ended this attempt.

M. Lorian, after the departure of M. Mahieu, flew in a straight line over Paris. His voyage passed without incident until a little before nine o'clock he reached St. Quentin, 167 kiloms. from his starting point. Here, for some reason, he flew so low that, like

Champel at Lanark, he became impaled on the trees. Neither he nor his friend were injured, but further progress was impossible. After the Circuit de l'Est these abortive attempts are a little disappointing.

Yesterday morning a little after nine another name was added to the martyrology of aviation—that of Edmond Poillot. At the conclusion of a flight at Chartres on a Savary biplane, with M. Patiot as passenger, he was capsized by a violent gust of wind while gliding to the ground. He broke his back and died almost at once. Only twenty-two years of age, and very popular, he was one of the few men who have left journalism for aviation. For some time he wrote the aviation section of *L'Auto*. His death is very deeply regretted here.

Some little amusement is felt here at the idea of our contesting an international event like the Coupe Gordon-Bennett on three French machines. A contest of such a description will be won as much by the machine as the man, and if an Englishman carries away the cup, the French will certainly take at least half the credit of the victory. Would it not be better if England waited until some native genius has evolved an original type of aeroplane before competing in international contests? In the early days of the automobile one did not buy a foreign car to represent England in the Gordon-Bennett. It was considered almost an essential that the machine as well as the man should be of home manufacture. Why alter now? We have at least as much chance of coming to the front in aviation as we had in motoring, but the continued use of foreign aeroplanes by all our best aviators will do nothing to help the production of a distinctive English type of flying machine.

### Chevalier de Knyff Turns Aviator.

EVIDENTLY the Chevalier Rene de Knyff has made up his mind to become an adept at as many sports as possible, and aviators will be interested to learn that the well-known motorist, having mastered the intricacies of golf last year, has now decided to turn his attention to aviation. Naturally he has favoured the Panhard-Tellier combination, and he will shortly commence his instruction on a monoplane of this type at the Tellier School at Etampes.

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## Committee Meeting.

A MEETING of the Committee was held on Tuesday, the 27th September, 1910, when there were present:—Mr. Ernest C. Bucknall (in the Chair), Mr. Griffith Brewer, Mr. Cecil S. Grace, Col. Henry C. L. Holden, R.A., F.R.S., Mr. F. K. McClean, Mr. J. T. C. Moore-Brabazon, Mr. Stanley Spooner, and Harold E. Perrin, Secretary.

### New Members.—The following new members were elected:—

Gustav W. Hamel.	J. H. Nicholson.
F. Conway Jenkins.	Reginald Nitch-Smith.
Lieut. Cecil H. Marks.	

**Flight Over Towns.**—The practice of flying unnecessarily over towns or thickly populated areas was considered and it was decided to form a special committee to deal with such cases as may come to its notice and to inflict such penalties as it may think necessary upon any of the members of the Club or Certified Aviators who make such undesirable flights.

The following have been asked to join the Special Committee:—Hon. Maurice Egerton, Mr. Cecil Grace, Mr. C. Grahame-White, Col. H. C. L. Holden, R.A., F.R.S., Major F. Lindsay Lloyd, Mr. F. K. McClean, Mr. J. T. C. Moore-Brabazon, Mr. Mervyn O'Gorman, and Mr. A. Mortimer Singer.

It was decided that the action of the Committee should be communicated to the Press.

The attention of the Committee was drawn to a report that the aviators taking part in the flights at Burton-on-Trent were being encouraged to make flights over the Town Hall, and instructions were given that a letter be sent to the Mayor of Burton conveying the decision of the Committee regarding this dangerous practice.

**Gordon-Bennett International Aviation Race.**—The request of the Aero Club of America for a reduction of the time limits for the International Contest from seven hours to four hours was considered. The Committee decided not to consent to the proposed alteration in the rule stipulating seven hours.

Mr. Claude Grahame-White, Mr. James Radley, and Mr. Alec Ogilvie, who will represent the Royal Aero Club in the Gordon-Bennett International Race, which will be held at Belmont Park on October 29th, have now arrived in America.

**Aviator's Certificate.**—The request of the Aero Club de France to grant an aviator's certificate to Mr. Waldemar William Smith was sanctioned.

**Death of M. Georges Chavez.**—The news of the death of M. Georges Chavez reached the Committee during its meeting, and a message of sympathy was immediately telegraphed to the Aero Club de France.

## Conference of the Federation Aeronautique Internationale.

The Conference of the Federation Aeronautique Internationale will take place in Paris on October 27th, 28th and 29th. The Royal Aero Club are entitled to 12 votes. A meeting of the General Committee of the Royal Aero Club, which consists of the Committee of the Royal Aero Club and representatives of Associated Clubs, will be held at 166, Piccadilly, London, W., on Tuesday, October 4th, 1910, at 4 p.m., at which the questions to be brought up at the Conference of the Federation will be considered and delegates appointed.

The following clubs are associated with the Royal Aero Club:—

- Scottish Aeronautical Society.
- Bristol and West of England Aero Club.
- East Riding Aero Club.
- Manchester Aero Club.
- Northumberland and Durham Aero Club.

## Baron de Forest £4,000 Prize.

Intending competitors for the above prize are again reminded that it is necessary to give one month's formal notice of entry. In addition to the rules already published, the following special regulations must also be observed:—

a. Competitors must have their machines ready for examination as soon as possible after sending in their entries. In the event of any alteration being made after the examination such alteration must be at once notified to the Secretary.

b. Competitors must, before starting, produce a certificate from

the maker certifying that both machine and motor are of British manufacture in accordance with the rules.

c. The complete machine must be examined before the start and the competitor must give a written undertaking that such machine complies with the regulations.

## Rolls Memorial Fund.

Members who have not yet sent in their contributions to the above Fund are requested to do so as early as possible. By limiting individual subscriptions to the sum of 10s. the Committee hope they will receive the support of all members.

It has been decided that the Memorial shall take the form of a bas-relief plaque, and that any surplus over and above the cost of the Memorial shall be devoted to the establishment of an **Aeronautical Library at the Royal Aero Club**, to be called the "Rolls Memorial Library."

Contributions of books to the "Rolls Memorial Library" will also be greatly appreciated.

A list of subscriptions received up to September 21st was published in the last issue, and the following have since contributed up to September 28th:—

Hon. Montagu Bertie.	E. Keynes Purchase.
Hon. Alan Boyle.	Donovan M. Rawcliffe.
J. E. Castle.	H. White Smith.
Philip Gardner.	S. E. Smith.
J. Norton Griffiths, M.P.	J. H. Spottiswoode.
B. H. Barrington Kennett.	Sir George White, Bart.
Rowland Moon.	G. Stanley White.
W. B. R. Moorhouse.	Samuel White.
Clinton R. Peterkin.	

The following donations have been received through the Aero Club de France:—

Count de Castillon de Saint Victor.	Henry Kapferer.
Marquis de Kergarion.	Alfred Leblanc.
Count Henry de La Vaulx.	Paul Tissandier.
	Ernest Zens.

## Library.

Mr. F. K. McClean has kindly presented to the Library of the Club, "An Account of the First Aerial Voyage in England," by Vincent Lunardi.

## Liege-Spa Aviation Meeting.

The Liege-Spa Aviation Meeting will be held at Hasselt from October 8th to 16th, 1910.

Full particulars can be obtained from the Secretary of the Royal Aero Club.

## International Aerial Exhibition, Paris.

The above Exhibition will take place at the Grand Palais of the Champs Elysees on October 15th to November 2nd, 1910.

The railway company are prepared to issue tickets at reduced fares provided a party can be made up of at least 30. Fuller particulars will be issued at a later date, and in the meantime members are requested to notify the Secretary if they intend visiting Paris, in order to facilitate any arrangements which it may be necessary to make.

## Eastchurch Flying Ground.

For the convenience of Members, the best train is the 9.45 a.m. from Victoria, arriving at Queenborough 10.55. At Queenborough change to the Sheppey Light Railway for Eastchurch, which is ½-mile from the flying ground.

**Railway Arrangements.**—The following reduced fares have been arranged with the railway company for members visiting Eastchurch:—

1st Class return, 8s.; 2nd Class, 6s. 6d.; 3rd Class, 5s.

Tickets available for one month from date of issue.

Members desiring to avail themselves of these reduced fares are required to produce vouchers at the booking offices. Vouchers can be obtained from the Secretary of the Royal Aero Club. Trains leave Victoria, Holborn, or St. Paul's.

HAROLD E. PERRIN,  
Secretary.

166, Piccadilly.



## PROGRESS OF FLIGHT ABOUT THE COUNTRY.

(NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.)

### Bristol and West of England Ae.C. (STAR LIFE BLDGS., BRISTOL).

A VERY interesting day was spent on Friday last week, at the invitation of the directors of the British and Colonial Aeroplane Co., at their flying school on Salisbury Plain. Admirable arrangements had been made by the club secretary, Mr. A. Alan Jenkins, and several splendid flights were witnessed. The "Bristol" machines, which were constructed at Filton, are now housed at Lark Hill, where they have attracted a good deal of attention, especially from the military authorities. Two of them were used during the manoeuvres by Capt. Dickson and Mr. R. Loraine. Just after lunch Mr. Robert Loraine arrived unexpectedly, and at once started off on a passenger flight, while in the course of the afternoon Capt. Dickson and Lieut. Gibbs made trial flights, and Edmond took up several passengers, including a lady.

### Devon and Cornwall Aero Club.

It has been decided to accept the offer of the free use of a nine acre field at Roborough Down, and several local gentlemen have decided to render financial help to the club. It has also been decided to place an order for a 30-h.p. Alvaston engine for the club monoplane.

### Legion of Scouts (Aero Section).

AN aero section has been formed in connection with the London command of the Legion of Scouts. Prospective members must be over 18, and over 5 ft. 2 ins. in height. It is proposed to have lectures on aeronautics, and also to undertake practical work both in connection with balloons and aeroplanes. Full particulars regarding membership can be obtained from H. H. Saunders, 6, Sonderburg Road, Holloway, N.

### Liverpool Aeronautical Society (6, LORD STREET).

It is intended to hold the annual meeting on October 10th next, at 7 p.m., at St. George's Restaurant, Redcross Street, after which Mr. W. P. Thompson will give a paper on natural flight, to be followed by discussion.

It is proposed that about every three weeks during the winter, meetings shall be held in St. George's Restaurant, at which essays and lectures will be given by the members and others, followed by debates. Members willing to give papers are asked to communicate with Mr. W. P. Thompson, 6, Lord Street, Liverpool. It is intended to hold an exhibition of models in Liverpool, in February next, at which prizes will be given.

### Manchester Aero Club (9, ALBERT SQUARE, MANCHESTER).

THE reports received by the committee from the representatives sent to the Bournemouth, Blackpool and Lanark flying meetings have been sufficiently encouraging for the committee to discuss the feasibility of a flying meeting in Manchester in 1911.

With this object in view, and to meet the demand of a practising ground for the members of the M.Ae. Club, the committee have now definitely decided, subject to a satisfactory lease being arranged between the solicitors of the two parties, to rent a flying ground within easy reach of the city of Manchester, and it is hoped that definite announcements will be made in due course.

### Manchester Aero Club (Model Section).

The last flying meeting of the season was held in the Exhibition Hall, Rusholme, on Saturday last, and proved a great success. Altogether there were 30 competitors, and all the machines were of the monoplane type, proceedings being watched by a fair number of interested spectators.

The first event was the final flights for the season's aggregate competition, and the winner proved to be D. Wood with his Fleming-Williams machine, with A. R. Whitworth as the runner-up. The second item on the programme was a contest for models under 30 ins. span, and it was won by V. Wood, whose model flew 145 ft., while J. Whittaker was second with 138 ft. The large models competed in the third event, where the honours fell to K. Kinna, his model flying 200 ft., W. S. Williamson being second with 181 ft., and J. Whittaker third with 139 ft.

Two prizes were offered by Mr. T. W. K. Clarke for the longest time in the air by a Clarke model, and they were won by K. Kinna (17 secs.) and A. R. Whitworth (10 secs.).

In the circular flight event the prize fell to A. W. Whittaker, while in a youths' competition for home-constructed models, the prizes were secured by A. B. Willcocks (183 ft.) and A. R. Whitworth (163 ft.).

The closing item was a point-to-point race round the hall, and three competitors tied, each doing the course in six stages. In the run off the models were flown simultaneously, and the winner turned up in A. Whittaker.

A good deal of interest was taken in a large petrol-driven model exhibited by Mr. Brent.

### Paddington and Districts Aero Club (2, EDBROOKE ROAD, W.).

MUCH interest has been shown in the "Merit Certificate," the original design being executed by Mr. W. Hogarth, a member of this club, a vote of thanks for same has been passed to him.

These diplomas are not presented to members for the asking, but good solid work in the club may eventually earn for them this distinction.

A museum of old veteran flying models of members was proposed to be formed.

The forthcoming competition for model flyers, kites and man-lifters will take place at Wormwood Scrubbs on October 29th; date and events will be confirmed next week. The secretary would be glad to hear from a few influential gentlemen who would interest themselves in several inventions by members of models that can be seen. One is a new rotary engine, and another a new type of propeller totally unlike anything yet invented. This is intended eventually to take the place of the elevator. Further particulars may be obtained from H. Hurlin, hon. secretary of the club.

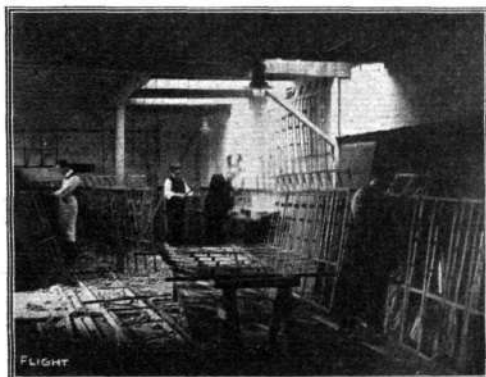
### Scottish Ae.S. (Model Aero Section) (3, STANMORE RD., GLASGOW)

THE secretary will be pleased to have communications from any persons who intend starting a model club in Scotland, and give help in the formation of same.

The club is holding a flying competition on October 8th, at which the following events will take place, viz. :—

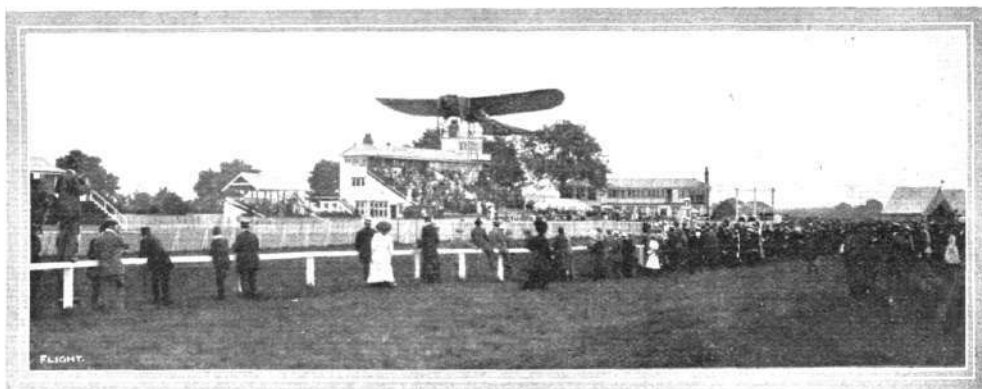
- a. Confined to members of the club and affiliated bodies.—1. Longest flight. 2. Circle flight. 3. Directional flight. 4. General efficiency.

b. Open to all persons residing in Scotland and to the club members and those of affiliated clubs.—1. Longest flight. 2. Circle flight. 3. Directional flight. 4. General efficiency. Along with gold and bronze medals, money prizes will also be offered. A deposit of 2s. 6d. will be required in respect of each machine entered for the meeting. This sum will be refunded provided the model competes. Entries must be sent in one week prior to competition, but late entries will be received up to one hour before the commencement of a competition at a charge of 1s. extra each. Entry forms can be had from J. Duncanson, hon. sec., 3, Stanmore Road, Mount Florida, Glasgow.



AN AEROPLANE-BUILDING CLUB.—A corner of the workshop of the Aeroplane Building and Flying Society at Hammersmith. It will be noticed that the six sections of the main planes of the biplane glider are practically complete, while on the right one of the wings of the monoplane is seen resting against the wall. Mr. W. Le Maitre, the Hon. Sec. of the Society, is seen at work with a mallet in the background.

# BRITISH NOTES OF THE WEEK.



Mr. Moisant circling round the Folkestone Racecourse on his Blériot.

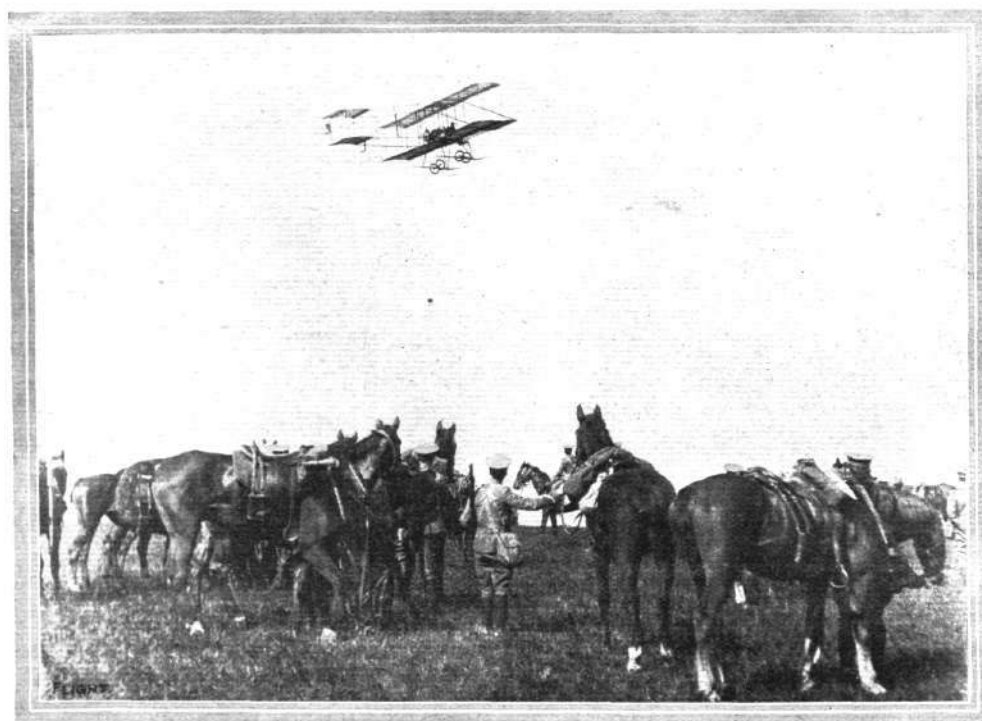
## Bristol Biplanes at the Manœuvres.

CONSIDERABLE gratification has been felt at Bristol with the splendid results obtained in the Army manœuvres with the two biplanes of the Farman type, built by the British and Colonial Aeroplane Co., at Bristol, and piloted by Capt. Dickson and Mr. Robert Loraine respectively. Both these aviators made several flights of varying duration, and after Capt. Dickson, through a misunderstanding, had landed in the enemy's camp, it was decided that the aeroplanes should be regarded as "neutral." Lieut. Gibbs also made some flights on a Bristol biplane, but most of his work was done on his racing Henry Farman machine.

## Wireless Messages from Aeroplane.

SOME interesting experiments were made on Monday, on Salisbury Plain, by Robert Loraine, who, piloting a "Bristol" aeroplane, was able to send some messages by wireless telegraphy to a temporary station rigged up at Lark Hill. The transmitting apparatus was fixed in the passenger seat of the aeroplane, and Mr. Loraine operated the Morse key with his left hand while he controlled the machine with his right.

Communication was maintained over a distance of about a quarter of a mile, and by way of a start may be considered a valuable achievement.



DURING THE BRITISH ARMY MANŒUVRES.—Captain Dickson, on his biplane, reconnoitring over the Somerset Yeomanry.



DURING THE BRITISH ARMY MANŒUVRES.—Captain Dickson's aeroplane retaken by the "Reds."

#### Officers for Naval Airship No. 1.

AMONG the appointments gazetted by the Admiralty last week were the following:—

Lieutenants N. F. Osborne and C. P. Talbot both to "Hermione," additional, for service with Naval Airship No. 1, to date September 26th.

For some time Lieut. Osborne has been superintending the construction of the new airship at Barrow, and this announcement gives official recognition to his work.

#### "Beta" at the Manœuvres.

ON Saturday afternoon the Army airship "Beta" returned to Farnborough after a week's scouting in connection with the manœuvres at Salisbury. On the previous Monday she sailed over to Salisbury and scouted during the afternoon. A slight mishap with the engines kept her "confined to barracks" on Tuesday, but on Wednesday, Thursday, and Friday practically the whole of Somerset, Dorset, and Wiltshire were covered during reconnoitring operations, in all about 700 miles, and the observations taken are reported to be most accurate.

#### Another Trial with National Fund Airship.

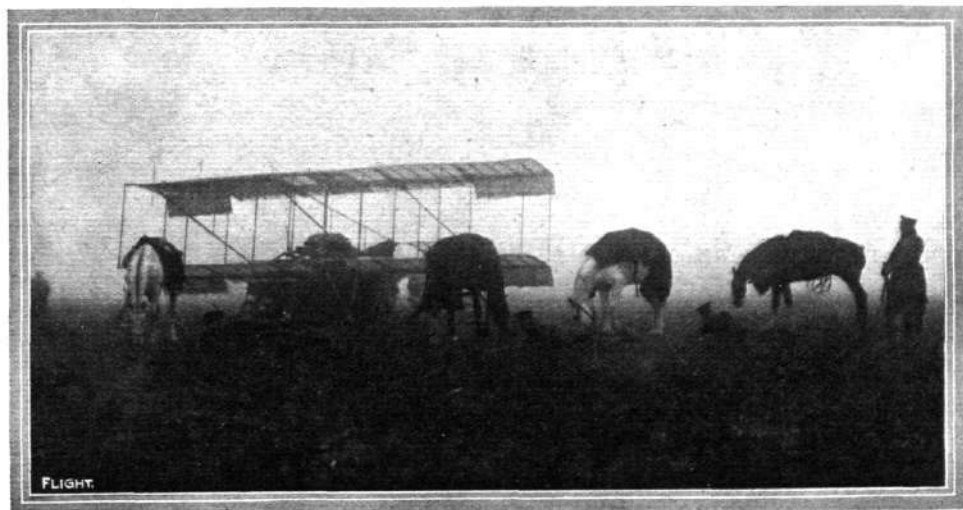
FOR forty-four minutes on Friday morning last week the Lebaudy airship, which has been christened the "Morning Post" by the French, cruised in the neighbourhood of its shed. Piloted by M. Capazza, and carrying six persons, it passed over Mericourt, Les Mousseaux, Freneuse, and Rosny-sur-Seine, where it hovered over the residence of M. Lebaudy.

#### A Good Flight by Cody.

IN the course of a forty minute flight on Tuesday evening, at Farnborough, Mr. S. F. Cody was mostly flying across country. In the afternoon he made a shorter trip with Mr. Mervyn O'Gorman, Superintendent of the Balloon Factory, as a passenger.

#### Sir Hiram Maxim Takes a Rest.

HAVING announced that he is discontinuing his experiments in aviation for a time, Sir Hiram Maxim has been induced to give his reasons for such a step. He says he is not really abandoning



ON WYLYE DOWN IN THE EARLY MORNING MISTS DURING THE BRITISH ARMY MANŒUVRES.—Guarding Captain Dickson's biplane in Camp.

aviation, but only taking a rest. As he weighs 17 stone, he has an idea that he is not qualified to fly himself, and as he is now over 70 years of age, thinks he can consider himself a land animal. His new biplane is nearly completed, but Sir Hiram does not intend to do anything with it at present.

Sir Hiram Maxim has been much impressed by the progress in aviation during the past two years, and thinks that in a few years aeroplanes will be used in military operations by all the great nations. In his opinion, within a year the French military authorities will be equipped with flying machines that will be able to leave French territory with a load of 400 lbs., besides the weight of the petrol and the driver, fly over London, and return inside four hours—probably three. Certainly, he says, in the future battles will be fought in the air, but flying machines will only be auxiliaries to the land forces.

## A Farman Built at Elswick.

AFTER the accident to Mr. Parkinson's Henry Farman biplane, which occurred while it was being flown by Madame Franck, it was

decided that a replica should be built locally. The work was undertaken by Mr. J. F. Fairbairn Crawford, Secretary of the Northumberland and Durham Aero Club, and assisted by a mechanic and joiner he has succeeded in his task of reproducing the biplane, only using the engine, tanks, and chassis of the original machine. The work is remarkably well finished, we understand, and will shortly be seen at Brooklands, where trials are to be made with it.

## A New Recruit.

MR. F. CONWAY JENKINS is one of the latest flying recruits from motorism at Brooklands, where he is practising on the "Matchless" monoplane, built to Blériot drawings by Messrs. Collier Bros., at Plumstead. It is fitted with a 40-h.p. J.A.P. engine. Mr. Jenkins' first essay was about a fortnight ago, when at a height of 20 ft. he was brought down sideways by a gust of wind, the under carriage being damaged. Mr. Jenkins, who is not severing his connection with Messrs. Bedford Motors, Ltd., is again at work, and hopes for better luck in his renewed efforts.



# CONTINENTAL FLIGHT MEETINGS.

## Opening of the Milan Meeting.

FAVoured with splendid weather and attended by a crowd of 200,000 persons, the Milan meeting opened on Sunday last in brilliant fashion. Altogether sixteen aviators took part, the most industrious being Fischer and Ruggerone on Henry Farman machines, who each flew 230 kiloms. during the day. The longest flight was one of 70 kiloms. by Ruggerone, and Fischer was next with 55 kiloms. Speed honours rested with the Blériot representatives, Aubrun being first and Cattaneo second.

## Opening of the Dijon Meeting.

ALTHOUGH an imposing entry list had been received for the Dijon meeting, which opened on Friday last week, the first day's

flying was limited to three aviators, Hanriot on his own machine, Renaux on a Maurice Farman, and Simon on a Blériot. These three shared the prizes, although none of the performances were startling, the longest flight being of 8 mins. and the highest 150 metres. On Saturday, Martinet and Barrier made short flights, but the flying was again curtailed by the wind. The longest flight was of 21 mins. by Hanriot, and the highest also by Hanriot of 290 metres. Sunday saw a fair amount of flying, with Hanriot still holding the leading position with a flight of half an hour, and an altitude record of 670 metres. A good number of short trials were made by the various aviators on Monday, and Hanriot and Renaux indulged in cross-country spins. Martinet, on his Henry Farman machine, occupied his time with a good many trips with passengers, and his biplane was on this account nicknamed the "Taxi."



Photo by Underwood and Underwood.

— ACROSS THE SIMPLON PASS.—General view of the hangars and starting plateau at Brigue before the start by Chavez.



**Paris to Brussels Race.**

Two competitors—Mahieu and Loridan, both on H. Farman machines—left Issy on Sunday morning with the object of trying for the Paris Municipal Prize of £1,000 for a flight from Paris to Brussels and back. Incidentally they were also competing for the Ae.C.F. Grand Prix. Each was accompanied by a passenger, Mahieu by M. de Manthe and Loridan by M. Fay. The former was the first to start soon after six and he was followed five minutes later by Loridan. Mahieu only got as far as Bagatelle when he was forced to land for adjustment and then when everything was ready for restarting an inquisitive dog got too close to the propeller. The unfortunate animal was instantly killed, the propeller was smashed. The

damage was repaired as quickly as possible, and a fresh start made on Monday. Leaving Bagatelle at half-past six, they reached La Fere, a distance of about 160 kiloms., at 9 a.m. After replenishing they started off again, but had only covered a little under a kilom. when the aeroplane fell and was smashed, putting it out of the race. Loridan was equally unfortunate. On reaching Bestres, near St. Quentin, his petrol suddenly gave out, and the machine became entangled with some trees. His mechanics ultimately rescued the machine, and after spending all night in repairing it, Loridan and Fay started off again on Monday morning. They had not gone far, however, before the machine fell to earth and was badly broken. The aviators escaped unhurt, and in view of the hopeless state of their machine, withdrew from the contest.

## ✕ ✕ ✕ ✕

# THE TRANS-ALPINE FLIGHT AND ITS TRAGIC SEQUEL.

WHAT a triumph for the pioneers of flight that at this early stage of the art it should have been found possible to cross over the Simplon Pass by way of the air. That the epoch-making achieve-

ment should have ended in taking toll of the life of Chavez is a calamity to be profoundly regretted. But it is by such magnificent feats that history is made, and Chavez has indeed inscribed

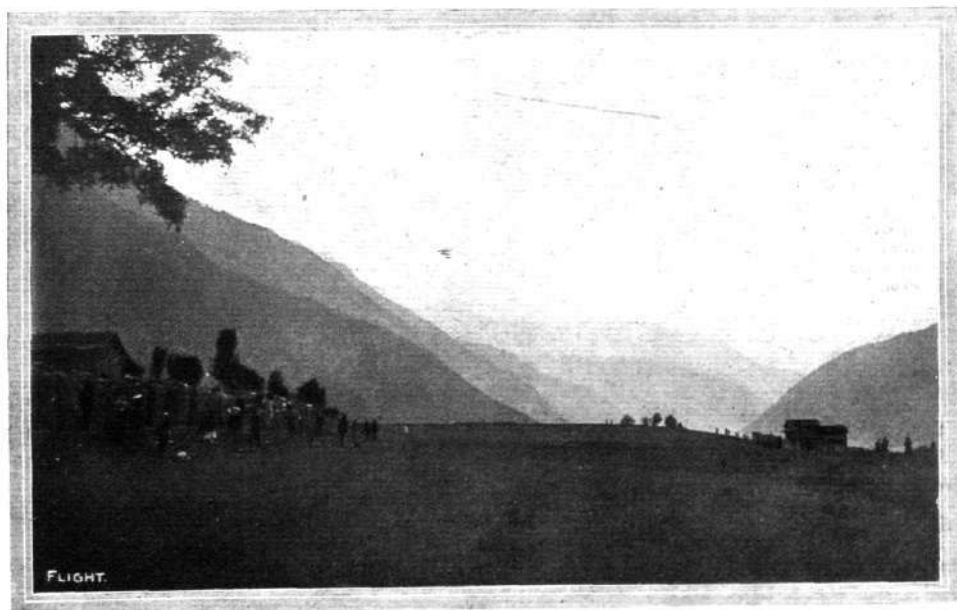
his name thereby indelibly upon the tablets of Fame. And there is, moreover, a measure of consolation in the fact that after conquering all the trying conditions of the Simplon Pass,



ACROSS THE SIMPLON PASS.—One of the alighting plateaux at the Hospice, and on the right Napoleon's Bridge.

ment should have ended in taking toll of the life of Chavez is a calamity to be profoundly regretted. But it is by such magnificent feats that history is made, and Chavez has indeed inscribed

Chavez should have been overtaken by misfortune, resulting in ultimate death, at the moment of landing at Domo d'Ossola. After several days of patient waiting for favourable conditions, Chavez



ACROSS THE SIMPLON PASS.—Weyman making a trial flight from Brigue plateau.

Photo by Underwood and Underwood.

determined to start on Friday afternoon last. After a run on his car to the top of the Pass, he started from Brigue at half past one, and eighteen minutes later had successfully passed the highest point of the Simplon Pass, while after he had been in the air about ten minutes under the hour he was at Domo d'Ossola, thirty-five miles from his starting point. He then decided to come down, and made a splendid and awe-inspiring gliding flight to within a short distance of the ground. Then the machine appears to have capsized and crashed to the ground, burying the aviator beneath it. He sustained very



Domo d'Ossola Plain, where Chavez descended with such unhappy results to himself.

severe injuries, including fractures of both legs, but it was confidently hoped that he would pull through. Good progress was made at first, but on Tuesday it was seen that the nervous shock had been too much, and the aviator gradually sank, passing away during the afternoon. Although he only obtained his pilot's certificate last February, Chavez had had a distinguished career, and at several of the French meetings he had made notable performances on a Henry Farman machine. On the last day of the Rheims meeting he suddenly appeared on a Blériot monoplane, and three weeks ago he successfully attacked the height record at Issy, carrying it to 2,680 metres. He used a Blériot machine during his Trans-Alpine flight.

Just previous to the start of Chavez's flight Weymann made a

✱ ✱ ✱ ✱

## FOREIGN AVIATION NEWS.

### Things they do better in France.

AN example of the different way in which aviation is looked upon in official quarters in France, as compared with our own country, is furnished by a series of official announcements regarding promotions and honours accorded to the French military aviators for "exceptional services rendered to military aviation or aeronautics" in connection with the recently concluded manoeuvres.

Lieuts. Sido and Néant are both promoted to Captains, and Lieuts. Bellenger and Jost will be similarly advanced at the earliest opportunity.

Capt. Bois and Marie and Lieut. Caumont La Force, of the active army, and "Corporal" Breguet and "Sapper" Latham, of the reserves, are to be made Chevaliers of the Legion of Honour. The military medal has been given to Engineer-Adjutants Menard and Legros, two of the dirigible mechaniciens.

### Doings at Juvisy.

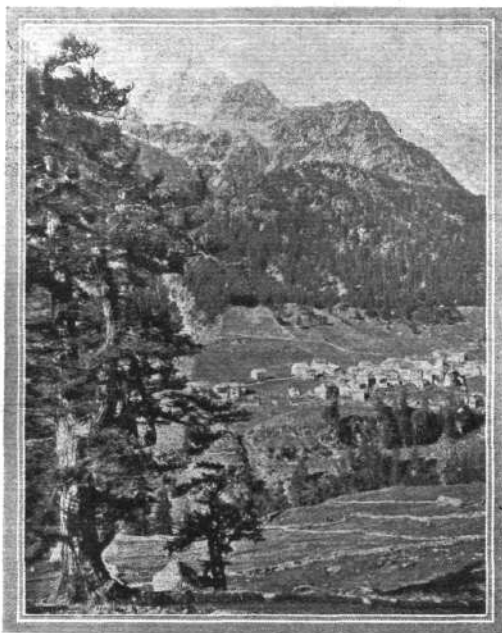
DURING the past week three machines have been undergoing trials. Godard, on his modified Voisin, on Thursday last week carried a passenger for 45 mins., but kept within a height of about 40 metres from the ground. A monoplane of the Santos Dumont type has been tried by Denhaut, while Masleinkoff is making good progress with his Farman.

### Military Flyers at Buc.

Two good flights were made by military pupils at the Maurice Farman School at Buc on Friday last week. Lieut. Berda was up for one hour and a quarter, while Lieut. Cheutin was flying for three quarters of an hour.

### A Russian Colony at Mourmelon.

THERE has been quite a colony of Russian pupils at Mourmelon lately, the greater number being at the Antoinette school. Col. Zelinsky has been joined there by Lieut. Komaroff, and Chion and Makowestky of the Aero Club of Odessa. Kazuminsky, who



ACROSS THE SIMPLON PASS.—View of Simplon village, over which Chavez passed on his flight across the Alps.

trial, but after reaching a height of 1,000 metres he descended again, and expressed the opinion that any attempt should be postponed till next year. On the preceding days various trial flights had been carried out from Brigue by Chavez, Weymann and Taddeoli.

has been learning on a Blériot, and Efimoff, the Farman pilot, left last week to take part in the St. Petersburg meeting.

### The Tellier School at Etampes.

THERE should soon be a large number of fully qualified Tellier pilots, as during the past week the training at Etampes has been pursued with great success, and without untoward incident. The pupils Salvay, Hammersley, Dunne, de Silva, Santoni and Becue have all made good progress, the last-mentioned especially. On Monday, for his fourth solo flight, after a circuit of the ground, he carried out a wide sweep over the surrounding country, landing afterwards in masterly fashion.

### The Train Monoplane at Mourmelon.

ON Monday Train, on the monoplane of his own design, and fitted with a 5-cyl. Anzani, flew for fifty minutes at a height of 200 metres at Chalons Camp.

### Cross-Country Flying in France.

APART from the attempts in the race from Paris to Brussels, a number of fine cross-country trips have been executed last week. On Tuesday of last week Lorian, on his Henry Farman machine, left Chalons with the intention of reaching Issy. The wind, however, was very strong, and he was compelled to descend at Montmort. After a rest he restarted and got to Montmirail, where he made another landing. From there he started off once more, and made his last stop for the day at Romilly. Early the next morning he was out, and easily completed the remaining stage of the journey to Issy.

On Wednesday last week Lieut. Bellenger arrived at Vincennes on his Blériot monoplane, having flown over from Briot, covering the 130 kiloms. in an hour and a half.

On Friday Gibert successfully made the journey in his aeroplane from Beau Desert (Bordeaux) to Royan, making two stops in the course of his 156 kilom. trip. On Sunday he won the Lehmann prize of 1,000 francs by flying from Royan to Lescar and back in 13 mins. 13 secs.

**Military Aviators Fly Back to Chalons.**

LEAVING Laféré at six o'clock on the morning of the 21st, Adj. Menard and Lieut. Cachat, mounted on their Henry Farman machine, arrived back at Chalons an hour and three quarters later. During the trip they kept at an average altitude of 1,000 metres.

**Rapid Tuition at the Hanriot School.**

AFTER having received only one hour's instruction on his Hanriot machine, George Bathiat, whose brother has made some good performances on the Breguet biplane, determined to try for his pilot's certificate, and easily made the three necessary flights at Rheims on Saturday last.

**Trials with Gordon-Bennett Machines.**

BOTH the Blériot and Antoinette machines which have been built to take part in the Gordon-Bennett race have been put through their trials, but naturally all details as to their speed capabilities are being kept secret. On Monday Latham paid a visit to Mourmelon and made a flight on his G.B. machine, which is fitted with a 100-h.p. motor, while on the previous Friday Leblanc was practising with his Blériot, which is equipped with a 100-h.p. Gnome.

**A Spanish Prince Learning to Fly.**

AMONG the notable persons taking lessons just now at the Antoinette School at Mourmelon is Prince Alfonso of Orleans. On Friday last week, both the Prince and his wife were carried by Laffont, while on Monday Latham continued the tuition of the Royal pupil.

**Activity at Issy.**

DURING the past week or so there has been a lot of practising at Issy. Anzani has resumed his experiments with a Blériot monoplane fitted with a 5-cyl. engine of his own design. J. Labouchere, cousin of the Antoinette pilot, has been making some good flights on a Zodiac monoplane, as also has Pierre Debroutelle. Colliex has been busy testing the two-seated Voisin. Garros with his Demoiselle has made several fine performances, and Mdlle. Jane Herveu, as well as several other Blériot pupils, have been taking lessons at the Bonnet-Labranche school.

**Taking Heavy Passengers.**

LAST week, at the Farman school at Etampes, Mahieu, after giving lessons to a number of pupils, picked out the two heaviest, each of whom turns the scale at 12 stone, and perching them up behind him on his Henry Farman biplane, took them for a lengthy jaunt over the aerodrome.

**M. Ch. Houry's Aviation School.**

A NEW French school has been opened at Chartres by M. Houry, who is so well known in the past in connection with automobiles, and from the early days of flying in France with aviation. Part of his system will be to start his pupils on a small Blériot XI model, the next step being on a 30-40-h.p. Gregoire-Gyp of 24 metres area, the final stage being on a full-sized Antoinette. The school, which is about 60 miles from Paris, on the fine Beauce Plains, was inaugurated by Princess Dolgorouki, who after a few days' tuition at the hands of M. Deletany, the chief pilot instructor, made a first flight of 2 kiloms. round the flying grounds.

**Visits Exchanged by Aeroplane.**

TWO interesting flights were made between Etampes and Buc on Thursday last week. In the morning M. Michel Mahieu, accompanied by a passenger, in his Henry Farman biplane, easily traversed the distance from Etampes to Buc, and in the afternoon Mr. Maurice Farman made the trip from Buc to Etampes. On the following day he returned to Buc, passing over Rambouillet *en route*, and stopping at Abilly for breakfast. On the same machine Commandant Duperron flew over to St. Cyr in the afternoon.

**Military Aviation In Italy.**

FOLLOWING the leasing by the Italian Government of Sig. Leonino da Zara's aerodrome at Boloventa, for the purpose of founding a military aviation school there, it is announced that Sig. Zara has been nominated as a Lieutenant of the Special Brigade.

**Olieslaegers beats Dutch Records.**

IN the course of a flight from Rotterdam to Scheveningen and back on Sunday, Olieslaegers beat both the Dutch duration (55 minutes) and the height (1,000 metres) records. The distance traversed was about 100 kiloms., and at the finish the aviator had a most enthusiastic reception, being greeted by the Minister of War among other prominent personages.

**St. Louis to New York Race.**

A CROSS-COUNTRY race is being organised in America to commence on November 24th. It will start from St. Louis and the finish will be at New York. The competitors will be required to cover the distance of a little over a thousand miles in six stages, viz., St. Louis to Cincinnati, Cincinnati to Columbus, Columbus to Cleveland, Cleveland to Harrisburg, Harrisburg to Philadelphia, and Philadelphia to New York.

**Regulations for Height Records.**

DOUBTLESS in view of the difficulty of registering the heights now reached by aeroplanes, the reporter-secretary of the Aero Club of France, Commandant Ferrus, has been instructed to prepare a series of regulations for height records.

**"Col. Renard" Visits Chalons.**

A CRUISE of 400 kiloms. from Issy to Chalons and back was carried out successfully on Friday of last week with the dirigible "Col. Renard," under the command of Capt. Delassus. Issy was left at 7.30 a.m., and rising to a height of 400 metres the airship made a rapid journey to Chalons, assisted by a light breeze. Arrived at Chalons-sur-Marne, the airship landed in order that the tanks might be replenished. This accomplished, the return trip was begun, and Issy was reached at 11.30 a.m., the last stage of the cruise including a detour over Vincennes, Senlis, Chantilly, St. Denis and St. Cloud. During the evening of the same day the airship was out again, and cruised for an hour.

**M. POILLOT.**

ANOTHER fatal accident has occurred in France, this time with a type of biplane against which no serious accident had been recorded hitherto. This is the Savary, a characteristic feature of which is the system of two propellers. The victim was Edmond Poillot, who forsook journalism a few months ago to take up aviation, and had made many successful flights with the Savary machine. On Sunday morning, at Chartres, he had carried out four trips with pupils, and then started off on a fifth trial with another pupil, Partiot. He rose to a height of 80 metres, and was circling the grounds, when the machine was seen to tilt suddenly and fall to earth. Both the occupants were thrown out, Poillot with such force that his back was broken, so that he was killed almost instantly. Partiot, luckily, was only slightly injured. No explanation is forthcoming as to the cause of the accident, but it is surmised that it came about by a treacherous gust of wind.



M. Poillot, who was last week killed at Chartres.

# CORRESPONDENCE.

\*. \* The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in **FLIGHT**, would much facilitate ready reference by quoting the number of each such letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

## ROYAL AERO CLUB AND FLIGHTS OVER TOWNS.

[773] In the present state of the science of aviation, the practice of flying unnecessarily over towns or thickly populated areas is considered by the Royal Aero Club to be not only fraught with considerable risk to the public, but also useless in furthering the progress of aviation.

The Club is therefore forming a special committee to deal with such cases as may come to its notice, and to inflict such penalties as it may think necessary upon any of its members or certified aviators who make such undesirable flights.

September 28th, 1910.

HAROLD E. PERRIN, Secretary.

## HIGH SPEED AND POWER.

[774] The articles entitled "Can We Fly Faster for Less Power?" are of great interest to me, also the curves and formulae of great utility. There is one point, however, I would like some opinion on. The curves have evidently been calculated on the assumption that the "aerofoil" is of no thickness. Now will these graphs apply to curves of which the angle of incidence of entry of top surface is much greater than that of lower surface (such as the Blériot plane)? At any rate can we neglect the top surface of "dip"? If so the graphs will apply, I suppose. The article seems to lead to an aeroplane whose planes have variable angles of flight as well as variable curvature. As this is hardly feasible in practice, is not the former faculty a good compromise? Even if the angle of incidence were varied from the angle of the top edge to angle of bottom, a good range of resistance would result. The great point is—is the dipping angle so negligible?

Some opinion on the points raised would be most interesting to me, and perhaps to others.

Barrow-in-Furness.

CLAUD W. RIDCOCK.

[Possibly the reduced scale on which the diagrams were necessarily reproduced, led our correspondent to overlook the fact, which he will notice on closer investigation, that the angles of deflection shown on page 532 are measured between the mean tangents. The mean tangents have been taken as lines bisecting the angle formed by the upper and lower surfaces at the leading and trailing edges of the planes. We do not know if this measurement will subsequently be justified by experiment, for like the rest of the points brought forward in these articles, it is merely a suggestion. On the other hand, it appears to us to be a plausible way of making a beginning, and as we pointed out, the deductions themselves, which have been presented in the form of charts and data, are not neutralised by the method of measurement, because if subsequent practical investigation shows that the effective angle is greater or less than the amount obtained by the method stated, the charts will still apply to the revised process for they are essentially based on effective values.

Our correspondent suggests that our article leads to the conclusion that planes with variable camber or variable attitude should be adopted; but the point that seems to be of such great interest in the deductions is the fact which theory shows a certain fixed angle to represent a minimum resistance irrespective of all other conditions of flight. In other words, the camber of the plane, in so far as the camber is determined by the angle, is a fixed quantity in advance for any machine designed to possess the quality of least resistance to flight. If Zahn's coefficient of skin-friction is correct, and if our other assumptions, on which we based our calculation for the power expended on aerodynamic resistance, are also accurate, then theory defines the camber in question as one that is represented by an effective angle of  $5^\circ$ . It is obvious that the efficiency of the angle is based on the assumption that the aeroplane flies with a fixed attitude relatively to the real wind, for any change in the angle of incidence causes a virtual change in the angle of deflection, and thus destroys the premises of the argument. On these and other practical grounds planes of variable camber or variable angle of incidence might possess advantages if they could be introduced in a practical form.

One of our chief objects in writing this series of articles was to suggest a logical and comprehensive way of regarding the general problem mathematically. Incidentally we hope to draw attention

to the necessity of obtaining as soon as possible the experimental data that is needed to place the theory of the aeroplane upon a decently accurate theoretical basis. Even the comparatively narrow field covered by the articles in question shows quite a number of points that are unsettled. The skin friction coefficient is one of them; the effective value of the angle of deflection and the proper relationship of the angles of entry and trail is another, as also is the value of the effective sweep. It may, for instance, conceivably be found that the best relationship between the angles of entry and trail is a function of speed, in which case the theoretically ideal plane would have a variable position of maximum camber, but a constant angle of deflection. It will be remembered that our specimen cambered sections on page 532 showed alternative designs for cambered sections having the maximum camber one-third and one-quarter of the chord from the leading edge respectively.

In the absence of such data it is obviously impossible to do any reliable quantitative work, but we can at least try to review the general situation and construct plausible theories with a view to better appreciating what it is we require to know. Experimental work is proverbially slow, and it is for that reason worth a great deal to feel that any particular series of tests are being carried out for the definite purpose of filling a certain hiatus in an established line of thought.—Ed.]

## AUTOMATIC TAILS.

[775] I read your correspondent's letter (688) in the current number, and your Editorial note thereto, dealing with the effect of the slip-stream from the propeller and the difficulty of inducing models to take a gliding position at the stage of their flight at which propeller action ceases.

It has occurred to me that the main or the tail planes of elastic-driven models could be so mounted and connected with the elastic that as the tension of the latter slackens during flight the angle of incidence of the planes would be automatically varied to give a compensating effect.

If any of your readers has time to experiment on the lines suggested, his results would possibly be of interest.

In this connection it is interesting to note that during the *vol plane*, of which we have heard so much of late, it seems to be a frequent practice to re-start the engine when approaching the ground. Am I correct in supposing that (in the case of machines with tractor mounted in front) a righting effect is produced by an increased lift of the main-planes due to the slip-stream of the propeller?

Manchester.

A. W. LAMBOURNE.

[This suggestion for using automatic tails on models is well worth trying, and we hope some of the numerous readers of **FLIGHT** who devote their spare time to the art will see how it works out in practice. We shall be pleased to have descriptive letters accompanied by sketches of any systems that are tried.

The restarting of the engine at the termination of the *vol plane* is a practice adopted by pilots of biplanes as well as those of monoplanes, and its purpose is to compensate for the slowing up effect produced when the aeroplane is turned on to a horizontal path. The principle of landing at high speeds consists in abolishing the angle of descent at the last moment so that the final flight takes place parallel to the ground. It is impossible to maintain this parallel flight for any considerable distance without driving the machine by the propeller, and it is for this reason that the engine is accelerated, generally spasmodically, while landing.—Ed.]

## GLIDING IN NEW ZEALAND.

[776] I have been a reader of your valuable paper for three months only, but I can see that it is a journal anyone interested in aviation should not be without. I see that subscribers give their experiences in gliding flights with models and full size machines, so I will give you mine for publication if you think it worth that publicity. I started to build a monoplane last November of the Blériot and Antoinette design, with a few new features. The chief dimensions were 26 ft. span, 25 ft. length over all, weight 196 lbs. I built the machine intending to fit an engine, but when it came to the time I found I could not get one suitable for the work. I then wondered if I could get the machine to glide, so I took it to the top of a hill with a grade of about 1 in 3½, and started the machine by running alongside and then leaping into the seat. I let the machine coast down the hill till it attained a pace of about 21 miles an hour and then tilted the main planes so that the machine made a leap of 25 ft., and I assure you I got the surprise of my life, for the machine only had 170 ft. of sustaining surface and lifted 350 lbs., which is equal to about 2 lbs. 1 oz. to the sq. ft. I kept experi-



menting till I could get leaps up to about 50 t., which I think is pretty fair for a machine of that weight. I am at present occupied building another machine, 35 ft. span, 27 ft. length, which will weigh about 320 lbs. without engine. I am building it of Oregon pine, and intend fitting a 40-h.p. engine. When I have had trials with it I will give full particulars and photos. I might state that there is not a machine in New Zealand that has flown with motive power to my knowledge, and very few people take an interest in aviation over here.

Otago, New Zealand.

W. A. F. POTTER.

### CENTRE OF PRESSURE.

[777] Your correspondent, Mr. V. K. Vyvan (No. 652), refers to Mr. Sellers' article on the centre of pressure, published in the May 14th issue of your esteemed paper.

I am of opinion that however excellent the research may be on this subject the results are only of theoretical assistance.

What a pilot really wants is an indicator showing him the approximate position of the c. of p. relative to the c. of g. during flight. On thinking this over I invented the apparatus which I hope will overcome the difficulty, and for which I have obtained protection.

Maybe the following short description will interest your readers:—

Working on the fact that fabrics such as are used for covering planes have a certain amount of elasticity, the air-pressure on a plane in flight will cause the fabric to assume a curve where it is not supported by ribs. This curve I call a natural curve.

As the centre of pressure alters its position during flight this natural curve will also alter its position.

Now if anything of suitable character is placed on the fabric between the ribs, i.e., on the convex side of the lower surface, it will be lifted according to its position relative to this natural curve.

By having a series of special design levers arranged at right angles to the ribs, the movement of the centre of pressure with the natural curve can be electrically indicated to the pilot by means of a calibrated dial placed in front of him.

Denmark Hill.

CLANE.

### THREE-BLADED PROPELLERS.

[778] I should be very much obliged if you would tell me what there is against using a three-bladed propeller for an aeroplane. I cannot find any mention of one, and yet it seems to me that it would have its advantages. Possibly, however, its disadvantages outweigh its advantages, though the only disadvantage I can think of is that it might cause vibration, though whether this is the case I don't know.

I am bound to say I don't know very much about the subject as yet, though it is one in which I am very interested.

Ford, Salop.

R. A. BOWLES.

[A three-bladed propeller would be more expensive to make than a two-bladed propeller, and that has in all probability been the chief reason why it has not been used. It should be better balanced than a two-bladed propeller if equally well made.—ED.]

### FLYING IN 1909.

[779] Would you kindly answer the following question: Did any machine leave the aerodrome and fly past the Tower at the Blackpool meeting last year (1909)?

H. BENSON.

[We were present during the entire duration of the official proceedings at Blackpool last year, and have no recollection of any machine flying outside the boundaries of the aerodrome except when Latham in his magnificent flight was blown somewhat out of his course and over the heads of some of the spectators.—ED.]

### TECHNICALITIES FROM THE BOURNEMOUTH MEETING.

[780] I am greatly interested in the remarks concerning landing equipment which your article deals with in the issue of July 23rd, and having had the pleasure of working for a client at a patent landing arrangement, now being manufactured for several owners, I thought the device might be of interest to others.

This patent (26,924, 1908) adds very little weight to a machine, and touches the writer's remarks concerning small wheels. It has large free rims and endless rolling skids, which will span hollows and mount obstacles that would "scotch" small wheels.

I believe most of the minor mishaps at least are due to the grip of the tyres on the turf at the moment of contact, and although pneumatic tyres are used on this arrangement they cannot grip the turf as they are encircled by the endless rims. With small landing wheels, no known mechanical shock-absorber could effectively absorb the shock of a chance landing, but this landing device, while

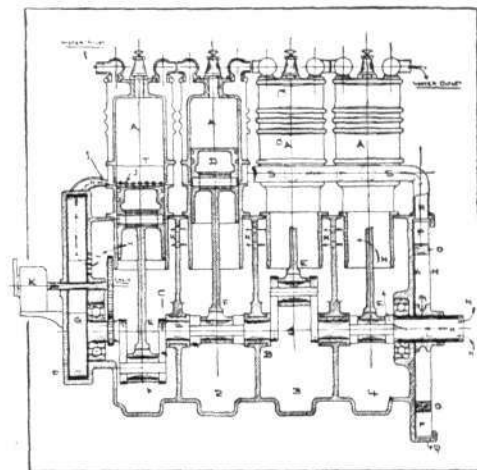
fitted with shock-absorbers, diverts most of the downward force to the horizontal line of travel in landing, giving time to disperse the balance force before the aeroplane is brought to a standstill.

Leicester.

T. F. C.

### AEROPLANE ENGINES.

[781] Replying to letter 584, I enclose a sketch of an engine that I have constructed, which relates to the question at issue. Air is drawn in through the hollow crank by the fan, G, driven over a carburettor not shown at L. Entering the cylinders at the ports shown when the pistons uncover them from above, the cranks of the four cylinders are at 90° therefore giving four impulses per revolution, as it works on the two-stroke principle.—The



fly-wheel is a steel ring mounted concentrically between two steel discs which are a close running fit in the casing, Q, and also between these discs are blades.

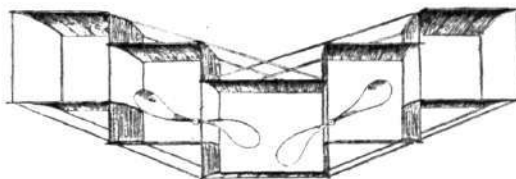
The pressure when the piston gets down to the line, T, represents 95 lbs. to the sq. in., which is put on to the fly-wheel blades four times per revolution; when the pressure in the casing drops below atmospheric pressure it then acts as a scavenger for burnt gases, the ingoing air keeping the turbine cool. This engine without any valves whatsoever when running at 2,000 revolutions gives 16,000 impulses on the crank-shaft per minute.

Bournemouth.

W. L. ADAMS.

### MCNEILL'S BIPLANE.

[782] As there seems to be a great similarity about biplanes I am sending you a diagram of my machine which, as will be seen, is a distinct departure from the usual run of biplanes. The diagram represents only that portion of my machine which I consider original.



The propellers have been placed in position to show the direction of transit through the air. The advantages claimed, and which have been proved, are as follows:—

1. Will lean at correct angle when turning.
2. Less liability to damage wings when landing on unsuitable ground.
3. Less chance of diving in any direction.
4. Will occupy less room when taken to pieces.
5. Has advantages of a form of dihedral angle without disadvantage of letting air escape too freely.

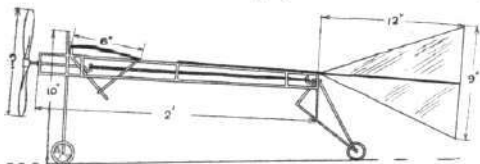
Bayswater.

H. M. MCNEILL.

## MODELS.

### PROPELLER FOR MODEL.

[783] I have made a monoplane (sketch enclosed), but am very doubtful as to the size and make of propeller to be used. Perhaps



some of your readers might help me in this matter, the main supporting surfaces being 2 ft. 6 ins. by 6 ins., and weight without propeller about 5½ ozs.

R. S. CLARKE.

### WEIGHT AND POWER.

[784] I have built a model Wright biplane; it is all finished except the motor and accumulator. It will be driven by two 8½ in. propellers at about 1,000 r.p.m., it is 3 ft. span, and has a total lifting surface of 4½ sq. ft., weight 16 ozs. Could any reader tell me what weight this model will carry to fly well.

Manchester.

H. F. POTTER.

### MODEL CONSTRUCTION.

[785] In reply to Mr. R. G. Pinnock's letter (657), I should like to give him my views on what kind of a model to construct, as he is a novice. A monoplane is about the first and simplest model to construct, but without wheels or elastic to drive it; make it as a glider, so that one can judge it, as to if the planes are adjusted correctly. Then when the model's gliding experiments have been satisfactory, then an elastic motor can be fitted. A good way of fixing the propeller is well illustrated in FLIGHT, No. 63, page 197, letter No. 402, under the heading, "Model Construction." I think if Mr. Pinnock could refer to some back numbers he would find some very valuable assistance in the correspondence portion under the heading "Models." I should advise Mr. Pinnock to look at FLIGHT, Nos. 58, 70, 72, 73, 80, and 81. In those pages sufficient knowledge can be obtained, enough to make a first-class model, as I have experienced. Wishing your paper every success, and hoping I have given Mr. Pinnock a little light with which to work his way as a beginner in the new, novel, and marvellous science of aviation.

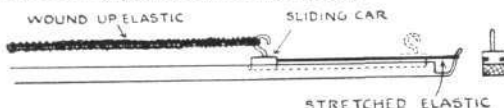
Battersea.

F. A. WAITE.

### ELASTIC MOTORS.

[786] I take a great interest in model aeroplanes, and I notice that when an elastic motor is fully wound up it causes more friction at the propeller-bearing than it does when the elastic is partly run down.

Do you think that this friction could be lessened by the method which I have described in the drawing enclosed?



The idea is to have a sliding car (at the end where the elastic is fastened), that would adjust itself according to the amount of tension caused by the winding of the elastic.

Perhaps some of your readers would like to try it?

Bristol.

S. E. CURRAH.

[The end thrust is due to the energy in the elastic, and is a necessary disadvantage of this form of motor. The sliding car would modify the energy represented by a given number of turns, but it would not alter the end thrust for the same energy.—ED.]

### SUMMARY OF OTHER CORRESPONDENCE, AND ANSWERS TO QUERIES.

[787] Mr. N. S. Barker (Bury) wishes to obtain working drawings to make a model Antoinette monoplane.

[788] Maj. R. N. Benwell, c/o Grindlay Groom and Co., Bombay, India, wishes to obtain catalogues and other particulars from manufacturers of aeroplane engines and accessories, and to hear if any agencies have been arranged in the Empire.

[789] Mr. F. Snell (Waltham) asks for best motor to drive a 4 ft. by 4 ft. model. If elastic, how much required.

[790] Mr. J. H. Alexander (Kilmarnock) wishes to obtain particulars from other readers of FLIGHT who have made large models fitted with petrol engines, with a view to constructing one on similar lines.

[791] Mr. J. Sowrey (Merton), informs us that there is a plot suitable for an aerodrome on the right hand side of Mitcham Road, Tooting Junction, just opposite Fig's Marsh.

[792] M. Goldberg. No successful flapping wing machines have been built, but many ideas have been suggested.

[793] Model Clubs for Various Districts:—Aldershot. M. W., of 116, Victoria Road, would like to hear from readers in the district with the idea of forming a youths' club. He considers Aldershot as ideal for those interested, considering the chances they have of studying the problems of flight in practice.

Barnes, Putney, or Wimbledon. "An Enthusiast" is anxious to join a model aero club near Barnes, Putney, or Wimbledon.

### OUR SPEED-ALARM COMPETITION.

Further letters, accompanied by descriptions and drawings, for the Speed Alarm Competition are acknowledged from:—

R. W. Tarrant.	F. Brook.	A. Curtis.
A. E. Beynon.	"N. G."	Tom Ford.
J. M. Boyd.	K. A. Robertson.	T. C. Parsons.
R. Pentony.		

### NEW COMPANY REGISTERED.

Murie Aeroplanes, Ltd., 23, St. Mary Axe, E.C.—Capita £800, in 2s. shares.

### PUBLICATION RECEIVED.

Formulaire pour la Construction des Aeroplanes. By A. Guirionnet. Paris: Librairie Aeronautique, 32, Rue Madame. Price 3 frs.

### OFFICIAL RECORDS.

Distance and Duration.—Olieslaegers (Belgium), at Rheims, on a Blériot monoplane with Gnome engine: 244'309 miles in 5h. 3m. 5½s.

Speed.—J. Radley (Great Britain), at Lanark, on a Blériot monoplane with Gnome engine: 1 mile in 47½ secs. = 75'95 m.p.h.

Altitude.—Chavez (France), at Issy, on a Blériot monoplane fitted with Gnome motor: 2,680 metres.

### Aeronautical Patents Published.

Applied for in 1909.

Published September 29th, 1910.

20,108.	W. J. POTTER. Aeroplanes.
20,230.	L. T. G. EVANS. Aeronautical apparatus.
20,575.	PLANES, LTD., AND W. P. THOMPSON. Flying machines.
20,877.	J. HIGGINBOTTOM. Mechanically propelled flying machines.
21,732.	J. DEAKIN. Aeronautical apparatus.
23,713.	G. HAYMANN. Flying machines.
24,315.	H. W. HOLT AND T. S. MARVON-WILSON. Aerial machines.

### DIARY OF FORTHCOMING EVENTS.

#### Foreign Events.

1910.	1910.	1910.
Sept. 24-Oct. 3 Milan.*	Oct. 17-25 St. Louis. Gordon-Bennett Balloon Race	
Sept. 25-Oct. 3 Biarritz.	Oct. 29 New York. Gordon-Bennett Aviation Cup.	
Oct. 8-16 Ostend.	Dec. 4-18 Marseilles.	
Oct. 15-Nov. 2 Paris Aero Show.		

\* International.

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